

per month plus increments for engine and airframe use.

In support of the request, applicant states that it was deemed economically desirable as well as operationally feasible to sublease one of its five B-727 aircraft because of the seasonal traffic requirements on Alaska's routes and because of the urgent need to conserve and restrict cash flow during the winter period. The applicant further states that approval of the agreement will not affect the control of an air carrier directly engaged in the operation of aircraft in air transportation, will not result in creating a monopoly and will not tend to restrain competition. Alaska believes that it is in the public interest to approve the agreement for all of the above reasons. Moreover, such approval would facilitate and improve Alaska's financial situation during the seasonally low traffic period.

No comments relative to the application have been received.

Upon consideration of the foregoing it is concluded that the sublease of one B-727 aircraft by Alaska to CMA involves a substantial part of the properties of Alaska within the meaning of section 408 of the Act and is therefore subject to the requirements of that section.<sup>2</sup> However the transaction does not affect the control of an air carrier directly engaged in the operation of aircraft in air transportation, does not result in creating a monopoly and thereby tend to restrain competition, nor does it jeopardize another air carrier not a party thereto. Furthermore no person disclosing a substantial interest in this proceeding is currently requesting a hearing and it is found that the public interest does not require a hearing. The Board has previously approved leases involving aircraft temporarily available for such purpose because of the seasonal nature of a particular carrier's operations.<sup>3</sup> Under the circumstances, it does not appear that the transaction will be inconsistent with the public interest or that the requirements of section 408 will be otherwise unfulfilled.

Pursuant to authority duly delegated by the Board in the Board's Regulations, 14 CFR 385.13, it is found that the foregoing lease transaction should be approved without a hearing under the third proviso of section 408(b) of the Act.

Accordingly, it is ordered, That the lease of one Boeing 727 aircraft by Alaska Airlines, Inc. to Cia. Mexicana de Aviación, S.A. as described herein be and it hereby is approved.

Persons entitled to petition the Board for review of this order pursuant to the Board's Regulations, 14 CFR 385.50, may file such petitions within 10 days after the date of this order.

This order shall be effective and become the action of the Civil Aeronautics

Board upon expiration of the above period unless within such period a petition for review thereof is filed, or the Board gives notice that it will review this order on its own motion.

[FR Doc. 73-8136 Filed 4-25-73; 8:45 am]

[Docket No. 24488; Order 73-4-75]

# INTERNATIONAL AIR TRANSPORT ASSOCIATION

## Order Regarding Fares Development Programs

Issued under delegated authority, April 18, 1973.

An agreement has been filed with the Board pursuant to section 412(a) of the Federal Aviation Act of 1958 (the Act) and part 261 of the Board's economic regulations between various air carriers, foreign air carriers and other carriers embodied in the resolutions of the Joint Traffic Conferences of the International Air Transport Association (IATA). The agreement was adopted at the Mid Atlantic Currency Conference held in March 1973, in London.

The agreement would adopt a new resolution establishing a Mid Atlantic Fare Development Program for the purpose of reviewing the Mid Atlantic fare structure. The aim of the program is to establish a basis for reaching prompt agreement at the North and Mid Atlantic Traffic Conference to be held in October 1973. We will herein approve the resolution, and condition it so as to require that copies of pertinent reports or other documents be submitted to the Board at the same time they are circulated to the carrier members of IATA.

Pursuant to authority duly delegated by the Board in the Board's Regulations, 14 CFR 385.14, it is not found that the following resolution, which is incorporated in Agreement C.A.B. 23606, is adverse to the public interest or in violation of the Act, provided that approval is subject to the condition hereinafter stated:

IATA No.	Title	Application
016a.....	Mid-Atlantic Fare Development Program (NEW).	15

Accordingly, it is ordered, That: Agreement C.A.B. 23606 be and hereby is approved, provided that copies of reports or other documents developed pursuant to the resolution and circulated to members shall be filed with the Board at the time of their circulation.

Persons entitled to petition the Board for review of this order pursuant to the Board's Regulations, 14 CFR 385.50, may file such petitions within 10 days after the date of service of this order.

This order shall be effective and become the action of the Civil Aeronautics Board upon expiration of the above period, unless within such period a petition for review thereof is filed or the Board gives notice that it will review this order on its own motion.

This order will be published in the FEDERAL REGISTER.

[SEAL] EDWIN Z. HOLLAND,  
Secretary.

[FR Doc. 73-8140 Filed 4-25-73; 8:45 am]

[Docket No. 24488; Order 73-4-74]

# INTERNATIONAL AIR TRANSPORT ASSOCIATION

## Order Regarding Passenger Fares and Rates Matters

Issued under delegated authority April 18, 1973.

An agreement has been filed with the Board pursuant to section 412(a) of the Federal Aviation Act of 1958 (the Act) and part 261 of the Board's economic regulations, between various air carriers, foreign air carriers and other carriers, embodied in the resolutions of the Traffic Conferences of the International Air Transport Association (IATA). The agreement, which was adopted by mail vote, has been assigned the above designated C.A.B. agreement number.

The agreement would revalidate and readopt an existing resolution which governs the filing of Government requirements and authorizations in order to reinstate the resolution on a worldwide basis.

Pursuant to authority duly delegated by the Board in the Board's Regulations, 14 CFR 385.14, it is not found that the following resolution, which is incorporated in Agreement C.A.B. 23597, is adverse to the public interest or in violation of the Act:

200 (Mail 174) 200g, 300 (Mail 398) 200g, JT23 (Mail 315) 200g, JT31 (Mail 239) 200g, JT123 (Mail 709) 200g.

Accordingly, it is ordered, That: Agreement C.A.B. 23597 be and hereby is approved.

Persons entitled to petition the Board for review of this order pursuant to the Board's Regulations, 14 CFR 385.50, may file such petitions within 10 days after the date of service of this order.

This order shall be effective and become the action of the Civil Aeronautics Board upon expiration of the above period, unless within such period a petition for review thereof is filed or the Board gives notice that it will review this order on its own motion.

This order will be published in the FEDERAL REGISTER.

[SEAL] EDWIN Z. HOLLAND,  
Secretary.

[FR Doc. 73-8139 Filed 4-25-73; 8:45 am]

[Docket No. 24419]

# SOCIETA' AEREA MEDITERRANEA S.p.A.

## Notice of Hearing

Notice is hereby given, pursuant to the provisions of the Federal Aviation Act of 1958, as amended, that a hearing in the above-entitled proceeding is assigned to be held on May 22, 1973, at 10 a.m. local

<sup>2</sup> It has been further concluded that exceptional circumstances exist within the meaning of the Sherman Doctrine, 15 CAB 878 (1952) and that there is no impediment to processing the application on its merits.

<sup>3</sup> Order 72-8-117, Aug. 28, 1972, docket 24639.



time), in room 911, Universal Building, 1825 Connecticut Avenue NW., Washington, D.C., before the undersigned.

For information concerning the issues and other details involved in this proceeding, interested persons are referred to the prehearing conference report, served July 13, 1972, and other documents which are in the docket of this proceeding on file in the Docket Section of the Civil Aeronautics Board.

Dated at Washington, D.C., April 23, 1973.

[SEAL] ROBERT L. PARK,  
Associate Chief  
Administrative Law Judge.

[PR Doc.73-6187 Filed 4-25-73;8:45 am]

## COMMISSION ON CIVIL RIGHTS COLORADO STATE ADVISORY COMMITTEE

### Agenda and Notice of Open Meeting

Notice is hereby given, pursuant to the provisions of the rules and regulations of the U.S. Commission on Civil Rights, that a planning meeting of the Colorado State Advisory Committee to this Commission will convene at 9 a.m. on April 28, 1973, at the Regional Office, U.S. Commission on Civil Rights, suite 216, Ross Building, 1726 Champa Street, Denver, Colo. 80202.

Persons wishing to attend this meeting should contact the chairman, or the Mountain States Regional Office, suite 216, Ross Building, 1726 Champa Street, Denver, Colo. 80202.

The purpose of this meeting is to complete the outline and assign Prison Subcommittee staff to prepare a preliminary report on the Colorado Prison project.

This meeting will be conducted pursuant to the rules and regulations of the Commission.

Dated at Washington, D.C., April 18, 1973.

ISAIAH T. CRESWELL, Jr.,  
Advisory Committee Management  
Officer.

[PR Doc.73-8197 Filed 4-25-73;8:45 am]

## COMMITTEE FOR PURCHASE OF PRODUCTS AND SERVICES OF THE BLIND AND OTHER SE- VERELY HANDICAPPED

### PROCUREMENT LIST

#### Additions to Procurement List 1973

Notice of proposed additions to the Initial Procurement List, August 26, 1971 (36 FR 16982), were published in the FEDERAL REGISTER on October 19, 1971 (36 FR 20260), December 16, 1971 (36 FR 23943), July 26, 1972 (37 FR 14902).

Pursuant to the above notices the following commodities are added to Procurement List 1973, March 12, 1973 (38 FR 6742).

### COMMODITIES

#### Class 7530

##### Folder, file (IB):

	Hundred
7530-889-3555	\$3.32
7530-559-4512	3.78
7530-926-8978	4.09
7530-926-8980	5.34
7530-281-5907	3.55
7530-281-5908	4.08
7530-273-9845	3.15
Folder set, file (IB):	
7530-281-5905	4.06

#### Class 8345

##### Signal pennants (IB):

	Each
8345-935-0420	\$7.87
8345-935-0517	7.87
8345-935-4755	8.87
8345-935-1847	8.87
8345-935-3201	8.87
8345-935-4758	8.87
8345-935-0522	8.87
8345-914-6086	8.87
8345-935-4753	9.90
8345-935-4754	9.90
8345-935-0404	9.90
8345-935-0514	9.90
8345-825-1868	10.52
8345-935-0406	\$10.52
8345-935-0509	10.52
8345-926-5988	10.52
8345-935-0512	10.52
8345-921-4497	10.52
8345-935-3199	10.93
8345-825-1839	10.93
8345-935-0526	10.93
8345-914-6078	11.87
8345-914-6080	11.87
8345-914-6083	11.87
8345-935-0524	5.01
8345-926-5987	5.01
8345-926-5989	5.66
8345-935-0539	5.66
8345-926-5991	5.66
8345-825-1840	5.66
8345-935-0521	5.66
8345-914-6087	5.66
8345-926-6026	6.29
8345-935-0403	6.29
8345-935-0536	6.29
8345-926-9210	6.29
8345-926-9213	6.69
8345-926-8028	6.69
8345-935-0508	6.69
8345-935-0519	6.69
8345-914-6085	6.69
8345-926-9215	6.95
8345-935-0411	6.95
8345-926-9212	6.95
8345-914-7411	7.55
8345-914-6079	7.55
8345-914-6082	7.55
8345-935-0523	3.58
8345-935-0417	3.58
8345-926-5990	4.03
8345-935-0421	4.03
8345-926-9207	4.03
8345-935-0542	4.03
8345-935-0520	4.03
8345-935-0492	4.49
8345-935-0493	4.49
8345-926-9214	4.49
8345-935-0415	6.69
8345-935-0513	\$4.49
8345-935-0490	4.78
8345-935-0495	4.78
8345-926-9208	4.78
8345-935-0518	4.78
8345-935-0511	4.78
8345-914-6084	4.78
8345-935-0405	4.95
8345-935-0410	4.95

#### Class 8345—Continued

##### Signal pennants (IB)—Continued Each

8345-935-0525	4.95
8345-914-6075	5.38
8345-914-6077	5.38
8345-914-6081	5.38
8345-935-0419	2.86
8345-935-0416	2.86
8345-935-0537	3.23
8345-935-0538	3.23
8345-935-0540	2.23
8345-935-0541	3.23
8345-926-9211	3.23
8345-935-0499	3.60
8345-935-0500	3.60
8345-935-0501	3.60
8345-825-1818	3.60
8345-935-0497	3.83
8345-935-0504	3.83
8345-935-1841	3.83
8345-935-0418	3.83
8345-825-1819	3.83
8345-926-1551	3.83
8345-935-0503	3.98
8345-935-0534	3.98
8345-935-1843	3.98
8345-926-1548	4.32
8345-926-1549	4.32
8345-926-1552	4.32

#### Class 8465

##### Bag, rolled clothes, submarine (IB):

8465-762-7671	1.83
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#### CORRECTIONS TO PROCUREMENT LIST 1973

Notice is hereby given of the following corrections to Procurement List 1973, March 12, 1973 (38 FR 6742). The corrections are in *italics*.

### COMMODITY

#### Class 6530

##### Wrapper, Sterilization (IB):

	Each	West
6530-850-8613	\$95.88	\$36.42
6530-926-4912	44.02	44.02

By the Committee.

CHARLES W. FLETCHER,  
Executive Director.

[PR Doc.73-8106 Filed 4-25-73;8:45 am]

## ENVIRONMENTAL PROTECTION AGENCY

### MOTOR VEHICLE POLLUTION CONTROL SUSPENSION GRANTED

#### Decision of Administrator

On February 10, 1973, the U.S. Court of Appeals for the District of Columbia Circuit remanded for further proceedings the May 12, 1972, decision by the Administrator of the U.S. Environmental Protection Agency to deny applications by General Motors Corp., Ford Motor Co., Chrysler Corp., and International Harvester Co. for 1 year suspension of the effective date of the 1975 motor vehicle emissions standards. On March 5, 1973, American Motors Corp. applied for suspension, and its application, along with those of the four appellants, was considered in a public hearing held during the period March 12 to 28, 1973. On April 11, 1973, the Administrator granted a 1-year suspension to the five applicants and simultaneously prescribed interim standards. The text of the Administrator's decision follows.



Before the Administrator, Environmental Protection Agency, Washington, D.C., in relation to applications for suspension of 1975 motor vehicle exhaust emission standards.

American Motors Corp., Chrysler Corp., Ford Motor Co., General Motors Corp., and International Harvester Co., applicants.

Decision of the Administrator on remand from the U.S. Court of Appeals for the District of Columbia Circuit.

APRIL 11, 1973.

#### DECISION OF THE ADMINISTRATOR

**I. Introduction.**—Section 202 of the Clean Air Act, 42 U.S.C. 1857f-1, requires that emissions of carbon monoxide and hydrocarbons from automobiles sold in this country during the 1975 model year be reduced by at least 90 percent from their 1970 levels. The only authority which I as Administrator have been given to affect the application of these standards is set forth in section 202(b)(5) of the act. That section allows me to suspend the effective date of these reductions for 1 year only, provided the following conditions are met:

The Administrator shall grant such suspension only if he determines that (i) such suspension is essential to the public interest or the public health and welfare of the United States; (ii) all good faith efforts have been made to meet the standards established by this subsection; (iii) the applicant has established that effective control technology, processes, operating methods, or other alternatives are not available or have not been available for a sufficient period of time to achieve compliance prior to the effective date of such standards; and (iv) the study and investigation of the National Academy of Sciences conducted pursuant to subsection (c) and other information available to him has not indicated that technology, processes, or other alternatives are available to meet such standards.

The first application for a suspension under this provision was filed with EPA on March 13, 1972, by A. B. Volvo Ltd. of Sweden. Shortly thereafter, applications were also received from Chrysler, Ford, General Motors, and International Harvester. After 3 weeks of public hearings, I denied all five applications in a decision issued May 12, 1972.

The four American applicants appealed this decision to the courts, and on February 10, 1973, the U.S. Court of Appeals for the District of Columbia Circuit, in a lengthy and detailed opinion, remanded the applications of the four appellants to me for reconsideration. *International Harvester Co. v. Ruckelshaus* (Slip Opinion No. 72-1517, Feb. 10, 1973).

Following this remand by the court, over 2 weeks of public hearings were held commencing March 12, 1973, to consider both the remanded applications and the application of American Motors Corp., which was filed on March 2, 1973. In the course of these remand proceedings, a great mass of oral and written material has been furnished, both voluntarily and in response to EPA subpoenas, by the applicants, other auto manufacturers, suppliers of catalysts and catalyst compo-

nents, oil companies, and representatives of public interest groups.

Substantial testimony was taken both before and after the remand concerning emission and other characteristics of engines different from the conventional internal combustion engine. It remains clear that some alternate engine systems can achieve the reductions required by the act, and certain alternate engine systems may well constitute preferred technology for the long term. However, no participant in the proceeding seriously contends that basic new car demand in 1975, as defined by the court, can be met if the industry cannot continue to produce and use conventional internal combustion engines in numbers roughly equivalent to current production of these engines. Because catalysts are generally necessary to control emissions from conventional engines to levels approaching the statutory standards, the principal questions before me on this remand are whether conventional engines equipped with catalysts can meet applicable emission standards and can be produced in 1975 in sufficient numbers to satisfy basic demand in a manner consistent with the public interest.

Without exception, all automobile manufacturers contend that catalyst technology is not presently available and effective to achieve the emission reductions required by the act. The manufacturers also contend that, even if prototype vehicles for sufficient numbers of models could be certified at the statutory levels in time for 1975 production severe production problems are likely to occur the first year catalysts are used and will result in recurrent and widespread production stoppages. Chrysler and some other manufacturers further contend that, even if catalyst-equipped vehicles can be successfully certified and mass produced in 1975 without difficulty, a large percentage of these devices will fall in actual customer use, thereby subjecting the manufacturer to extraordinary liabilities under the act's recall and warranty provisions. Most foreign manufacturers share Chrysler's reluctance to use catalysts on any 1975 models.

Ford and General Motors are decidedly less pessimistic about the effectiveness of presently available catalyst technology. As I understand the positions of these two manufacturers, as developed during these proceedings on remand, they believe that a limited introduction of catalyst-equipped cars in 1975 is feasible and desirable as an initial step toward nationwide use of catalysts on all models. Ford and General Motors have accordingly proposed interim standards for California vehicles which they contend will require the use of catalysts on all California models.

Since the early 1960's the State of California has been the leader in automobile emission control. In general, Federal standards have followed California standards by at least 1 full model year. This historical pattern of regulation has permitted manufacturers to scale up their production processes as improved

emission control technology is developed and employed. Initial introduction of new emission control technology in California, followed by nationwide use in a later model year, has been made possible by provisions in the act for waiver of Federal preemption of California requirements for controlling emissions of new vehicles.

Acting under these provisions of the act, I have waived Federal preemption with respect to emission standards prescribed by California for vehicles built and sold during the 1974 model year. While California's 1974 standards for hydrocarbons and carbon monoxide are only marginally more stringent than Federal standards applicable to 1974 automobiles, California's 1974 standard for nitrogen oxide emissions is substantially stricter than the Federal standard. In addition, under California law 90 percent of production vehicles are required to meet applicable certification standards, a requirement which makes a California certification standard significantly more stringent than an equivalent Federal standard. California has requested waiver of Federal preemption for a new set of standards applicable to 1975 automobiles which requires a substantial further reduction in emissions of all three pollutants. This request is now pending before me for decision.

The following table compares these various standards and proposals for California and indicates the approximate degree of emissions from uncontrolled automobiles:

	HC	CO	NO <sub>x</sub>
	(grams per mile)		
Uncontrolled cars	8.7	87.0	3.5
Federal 1974 standards	3.0	28.0	3.1
California 1974 standards	2.8	28.0	2.0
Proposed Ford standards	1.2	17.0	2.0
Proposed California 1975 standards	.9	17.0	1.5
Statutory 1975 standards	.41	3.4	(3.1)

Bearing in mind the additional stringency created by the California requirement that 90 percent of production vehicles meet the certification standard and by the requirement that California vehicles control nitrogen oxide emissions to levels substantially below Federal standards, the proposed California 1975 standard for hydrocarbons of 0.9 grams per mile approaches in stringency the congressionally mandated standard which these applicants seek to have suspended.

The National Academy of Sciences has prepared and submitted three reports that are pertinent to this matter. The

<sup>1</sup> General Motors' proposed California standards for the three pollutants are .76, 5.7, and 3.1, respectively. However, General Motors has premised this proposal on a significant relaxation of the federal certification procedure. Hence, it is difficult to compare the General Motors' proposal with other proposals.

All standards for HC and CO are expressed in terms of the 1975 Federal CVS test procedure. The 1975 Federal NO<sub>x</sub> standard has been prescribed pursuant to section 202(a) of the act.



first two reports, issued in January and April of 1972, respectively, predated my earlier decision. The third report, dated February 15, 1973, was submitted 5 days after the court issued its opinion and order remanding the proceeding to me.

In remanding this matter to me for reconsideration, the court of appeals weighed the "grave economic consequences" that might result from denial of a suspension against the environmental costs that might result from granting of a suspension. The court concluded that "the risk of an 'erroneous' denial of suspension outweigh(s) the risk of an 'erroneous' grant of suspension," even if no interim standard for 1975 is prescribed. As I read the court's opinion, the court believes that these risk-balancing considerations should be taken into account in determining whether effective control technology will be available in 1975. On that basis, the court has required a high degree of confidence that 1975 standards can be achieved and has cautioned that a decision to deny suspension, to the extent it is based on predictions of technological availability as opposed to direct evidence of such availability, must be supported by a detailed showing that the methodology underlying the prediction is reasonable and reliable.

The court's discussion of factors pertinent to this decision includes a broad range of "public interest" considerations, including "the impact on jobs and the economy" from any decision resulting in decreased levels of production during 1975. In my view, the court's opinion correctly emphasizes that my decision should be designed to bring about ultimate achievement of the statutory standards by 1976. The court has also emphasized that the statutory authority to suspend the standards and to set interim standards during 1975 should be used as a "safety valve" to minimize the risk of serious economic consequences when the necessary technology is first introduced.

**II. Summary of decision.**—As I view this decision, the issue before me is essentially the most reasonable method by which necessary technology will be installed on automobiles to meet the statutory standards. In resolving this issue, on this record, I believe that I have three basic choices.

First, by denying these applications or by establishing national interim standards similar to those proposed for 1975 by California, I can in effect require the automobile industry to install catalytic converters on all conventional 1975 automobiles. Second, by establishing interim standards which do not require use of catalysts, I can allow the industry an additional year to further test and improve catalyst or other technology, while requiring substantial additional reductions in emissions through engine modifications. Third, I can require use of catalysts on a substantial portion of 1975 vehicles, thereby attempting to minimize initial production problems and their potential impact on the public while requiring each manufacturer to gain production experi-

ence preliminary to use of catalysts on all conventional engines during the 1976 model year.

It is my judgment that the third option best serves the total public interest and the mandate of the statute. It promotes continued momentum toward installation of control systems meeting the statutory standards, while minimizing risks incident to national introduction of a new technology. This option also offers the opportunity to gain experience with production of catalyst systems for a full range of automobiles by requiring catalysts on a portion of each model introduced by each manufacturer in the State of California.

I am accordingly waiving Federal preemption for California's 1975 hydrocarbon standard of 0.9 gram per mile (as measured on the 1975 Federal test procedure), except to the extent that such California standard applies to multipurpose vehicles as later defined in this decision. I am also waiving Federal preemption for continued application during the 1975 model year of California's nitrogen oxide emission standard of 2 grams per mile (as measured on the 1975 Federal test procedure), except to the extent that such California standard applies to multipurpose vehicles. This waiver of Federal preemption shall include California's assembly line test requirement. In order to insure that catalysts are used in California, I am denying waiver of preemption for California's 1975 carbon monoxide standard and I am prescribing a more stringent Federal interim standard for 1975 light duty vehicles shipped to California, other than multipurpose vehicles, limiting emissions of carbon monoxide to 9 grams per mile, as measured by the 1975 Federal test procedure.

Thus, under my decision the Federal and State standards applicable to 1975 cars sold in California will be: 0.9 grams per mile of hydrocarbons; 9.0 grams per mile of carbon monoxide; and 2.0 grams per mile of nitrogen oxides. These standards in my judgment will require use of catalytic converters on all 1975 passenger cars shipped to California. California sales of such vehicles constitute approximately 10 percent of total United States new car sales.

Except to the extent that a vehicle is subject to a more stringent carbon monoxide standard applicable to vehicles shipped to California, all 1975 light duty vehicles, other than multipurpose vehicles, shall be subject to the following federal interim standards, as measured by the 1975 Federal test procedure: 1.5 grams per mile hydrocarbons; 15 grams per mile carbon monoxide; 3.1 grams per mile nitrogen oxides. These standards can, in my judgment, be achieved by manufacturers generally on most models without use of catalytic devices. In my judgment these standards will not require use of catalysts on more vehicles sold outside California than manufacturers are capable of producing without the possibility of severe production difficulties.

Multipurpose vehicles shipped and sold during the model year 1975 shall for the most part be subject to emission standards applicable to 1975 light trucks.

The most compelling factor in my decision to require phase-in of catalysts in 1975 has been the possibility raised by the evidence that if the automobile industry attempts to install catalytic converters on its entire product line, without a scaleup period of limited mass production in which to gain experience, difficulties such as a shortage of vital parts or materials, inaccurate machining tolerances, or defects in assembly techniques will arise, and may well be severe enough to cause significant economic disruption. These problems will be more fully discussed later in this decision. I believe that the requirement to install catalytic converters on all 1975 automobiles shipped to California and on a portion of 1975 cars sold outside California will minimize adverse economic effects which could be caused by production difficulties associated with initial use of new technology, will require all manufacturers to gain experience in the mass production of catalyst-equipped cars under conditions of careful quality control, and will maintain the accelerating momentum of technological progress which has so clearly characterized catalyst development for automotive applications during the past 2 years. In requiring a limited introduction of catalysts in 1975 I am holding the two major U.S. manufacturers to their commitments to use the additional year to gain essential experience in production techniques by equipping all California models with catalytic converters.

My decision will have other important effects.

New 1975 cars sold in the Los Angeles basin, where automobile-related pollution is most severe, will have the highest degree of emission control that is technically achievable in 1975 on a broad range of cars. In addition, two Japanese manufacturers (Toyo Kogyo and Honda) plan to market significant numbers of automobiles powered by innovative engine systems which do not require catalytic treatment to achieve emission reductions even lower than appears to be possible with conventional engines. These companies sell a disproportionately high number of their vehicles in California. Hence, the advantages which these alternate engine systems may offer, in emission control and in other areas of performance, will have an early test in the marketplace. Where regulatory requirements for emission control challenge conventional technology to its limits, the marketplace will in my judgment provide a strong lever for causing a shift into any superior technology.

The selection of California for initial introduction of catalytic converters has other advantages as well. Because of California's history of leadership in emission control, that State has in existence a legal and regulatory framework for implementing and enforcing a set of standards different from those applicable outside California. Because of its size, and



because its major cities are geographically distant from other States, regulation of out-of-State traffic is less essential, and enforcement of requirements applicable to California residents is less difficult.

At the same time, I believe that the national interim standards I am prescribing will obviate or minimize the need for additional transportation controls in urban areas outside of California. These interim standards, while they are achievable for the most part without catalysts, require a reduction in emissions from uncontrolled levels of over 80 percent and a reduction from 1974 levels of about 50 percent. To the extent that additional transportation controls are needed outside California, vehicles designed for California can be purchased in 1975 by fleet operators, such as taxicab companies. Although evidence was presented that failure to deny suspension would adversely affect the attainment of ambient air quality in some areas, notably New York City, this evidence was based on a continuation of the 1974 automobile emission standards. The national interim standards which I am establishing will not, in my judgment, unduly inhibit control programs in urban areas outside California.

III. Discussion.—1. *Encouraging progress in development of technology.*—In my decision of May 12, 1972, I found that, although no manufacturer had yet succeeded in running a car that met the 1975 standards for the required 50,000 miles, promising new technology was available to the manufacturers which in view of the time that then still remained for development and testing, made it reasonable to conclude that compliance could be achieved within the statutory deadline May-December, pp. 8, 13.<sup>2</sup> It is clear that during the 11 months since last year's decision impressive strides of progress have been made by some companies toward development of technology capable of meeting the 1975 emission

control standards at reasonable cost, even though the constraints of time appear to make it not feasible to apply those standards for 1975 model year cars.

The evidence available indicates that questions previously raised as to whether use of catalysts might create safety hazards can now be largely set aside. It also appears that the cost of emission control systems will be less than previously anticipated. Finally, concerns over the fuel penalty which might result from use of catalysts have been reduced significantly.

Certain data presented by General Motors provides considerable support for optimism that the industry is on the brink of success in meeting the 1975 standards. Six cars from GM's latest test fleet have completed the 50,000-mile test runs which the law requires. Three of these met the standards at the end. GM App. VI-11. Two more almost met the standards. This fleet was built and started running almost a year ago. Given the rate of progress in this field, it is reasonable to expect that its performance would be significantly better today. As Mr. Starkman of GM testified, "We are on a very steep learning curve." Tr. 2990.

Test data on durability cars run by other auto manufacturers for 50,000 miles also show a number of other examples where systems have achieved compliance with the 1975 standards or have come very close to doing so. Results for cars driven substantial mileage (for example, in the range of 20,000/30,000 miles) contain a sizable number of other cases where the 1975 Federal standards were being met. It must be recognized that other test cars have performed unfavorably and produced data considerably above the 1975 standards. In many of these latter cases the poor results are attributable to identifiable and correctable problems; in other cases, however, it is unclear whether such an explanation applies. It is also apparent from other data submitted on the basis of dynamometer and laboratory testing that significant improvements in catalysts have been made, making it reasonable to assume that future test results will be better than past test results. Tr. 917; 1322-24; 1356-60; 1423-25; 1496. On balance, I believe that an overall review of test data supports the judgment that solutions are close at hand to overcome any remaining obstacles which might interfere with achievement of the 1975 standards by the auto manufacturers.

The applicants contend that their test results show that, if catalysts are installed on all cars in 1975, a high proportion can be expected to fail in customer use. Indeed, this expectation of catalyst failure constitutes one of the principal arguments that technology is not "available" to meet the 1975 standards. The applicants further argue that ruinous legal liabilities could be imposed on them under provisions of the Clean Air Act that force the manufacturer to warrant the catalyst and provide for the recall of models of vehicles when a significant number are found to exceed standards.

Some have also sought to raise a fear that the catalyst will pose a danger to the vehicle and its occupants.

Such arguments deserve careful consideration.

It is clear to begin with that a catalyst "failure" will neither harm the driver nor damage the vehicle. The term is used to describe a situation in which the catalyst for some reason deteriorates and therefore fails to burn the pollutants passing through it. The catalyst then sits inert on the tail pipe of a vehicle which performs in all other respects exactly the same way it did before.

Ford, when questioned on this point, said that the danger it feared from the nationwide installation of catalysts was simply that they would not control pollution as they should, and that Ford Motor Co. would be exposed to legal liability in consequence. Tr. 2191-93. General Motors was even more emphatic. Tr. 2431-2437. Similarly, the National Academy of Sciences testified that in expressing reservations about the use of catalysts it did not mean in any way to imply that vehicles in which the catalyst failed would not be safe and would not operate properly. Tr. 1605-06.

The only form of catalyst failure that any manufacturer suggested might be dangerous was melting. This can occur when the catalyst is supplied with an overdose of unburned hydrocarbons or carbon monoxide (caused, for example, by a failed spark plug) which overheats the catalyst due to higher temperature of combustion going on inside it. However, the only manufacturer of catalyst containers who testified stated that his company was willing to warrant that any such melting failure would not burn through the outside can if his company had supplied it, and that the outside of the can would not even get dangerously hot. Tr. 1541, 1550-51 (Walker Manufacturing Co.). Similarly, Ford testified that their catalyst containers had an adequate margin of safety against such failures. Tr. 286-87.

In my view such a record is clearly enough to outweigh a few recitals of testing mishaps. Tr. 384, 875, an asserted lack of sufficient knowledge by American Motors, Tr. 2363-64, and the perpetual fears of Chrysler, Tr. 2289-93. (Chrysler's expressed fears are contradicted by its own submission, which states: "When ['catastrophic failure'] occurs, there is no indication to the driver of the failure, except that in some cases the vehicle actually drives better and fuel economy may improve." C. App. p. I-34.)

It is difficult if not impossible to determine now what frequency of catalyst failure should be anticipated when catalysts are put into mass production and installed on cars for regular use. A substantial incidence of catalyst "failure" has been experienced by auto manufacturers in various testing programs. Claimed failure rates in the range of 10 to 20 percent have been made and Chrysler says it experienced failure rates "up to 40 percent."

In many cases, however, it appears that the auto companies have attempted

<sup>2</sup> In this decision, the following abbreviated citations are used:

Tr.—The transcript of the March 1973 hearings.

May Dec.—My prior decision of May 12, 1972.

Dec.—The slip opinion issued by the Court of Appeals on Feb. 10, 1973.

C. App.—The Supplemental Statement of Chrysler Corp. dated March 1973.

F. App.—The Submission Upon Remand of Ford Motor Co. dated Mar. 5, 1973.

GM App.—The Statement of General Motors Corp. on Remand dated Mar. 5, 1973.

NAS Rept.—The Report by the Committee on Motor Vehicle Emissions of the National Academy of Sciences dated Feb. 12, 1973.

Ford Mem.—The Post-Hearing Memorandum of Ford Motor Co.

C. Mem.—The Post-Hearing Memorandum of Chrysler Corp. dated March 1973.

C. Doc., Vols. I-VI—The six volumes of documents submitted by Chrysler Corp. in response to Mr. Allen's requests made on Mar. 15 and 21, 1973, and set forth at Tr. 1143 and 2355-57.

EPR Minutes—Minutes of the Emissions Policy and Review Committee of Chrysler. These are contained in C. Doc., Vol. II and are cited by date.



to represent any physical damage to the catalyst as a "failure." In fact, a comparison of five melted or cracked catalysts from Riverside West (all claimed as "failures" by Ford, see F. App. table 4-6) with 14 unfailed catalysts that is made in the "Failure Analysis" section of the technical appendix indicates that the physical damage had no statistically significant effect on catalytic activity.

Chrysler data were not sufficient for such a comparison. It may be noted, however, that the dramatically "failed" catalyst portrayed (C. App. app. G., pp. 19-20) was tested after the extensive melting depicted had occurred and found to have conversion efficiencies of 70 percent for HC and 90 percent for CO.

The technical appendix also gives a detailed breakdown of the number of emissions failures due to engine malfunctions of a type that can be expected not to occur in production cars, and of the number of catalytic failures that appear to have been cured by technical advances (for example the "clamshell" mounting Chrysler has developed) or to have resulted from failure to use the most advanced system (for example, the lack of heat resistant ignition wires in Ford's Riverside West program).

It appears that the test cycles on which Chrysler ran catalysts are designed to overstress engine components so they will show their weak points quickly, and that in the past vehicles run on these cycles have had component failure rates about 10 times higher than in the field (Tr. 368, 418-19, 229, 2301, 2306-07). Many of these failures, moreover, have been associated with engine malfunctions of a type which the manufacturers generally admit will not occur often in normal use (Tr. 76-77, 416. See also Tr. 2959). Future experience with catalyst failure is also likely to be reduced as a result of improvements in heat resistance properties of catalysts, and progress in developing overtemperature protection devices. Consequently, it now appears probable that the overall effectiveness of catalysts installed in production vehicles will be reduced only within relatively narrow limits as a result of catalyst failure.

Overall, catalysts are highly effective pollution-control devices. Even a mediocre catalyst can be expected to destroy 80 percent of the carbon monoxide and about 50 percent of the hydrocarbons that pass through it.

Nor do the costs for the degree of emission control appear excessive. According to estimates in the 1973 NAS Report, with which my staff generally agrees, a 1975 model catalyst equipped car can be expected to cost about \$160 more than the emission control system on a 1973 model. About \$57 of this cost will be accounted for by the catalyst (NAS Report Table 5.2, pps. 90-93). Although additional costs to the consumer will result from the need to use unleaded fuel to avoid catalyst poisoning, unleaded fuel also is expected to create savings in maintenance costs which will

be approximately equal to the costs resulting from removal of lead from fuel.

In summary, the development of technology to date, as reflected in the testimony and documents presented in these proceedings, holds promise for meeting the 1975 standards. In particular, catalyst devices now clearly appear to be effective, durable, and reasonably inexpensive.

2. *Evaluation of whether technology is available to meet the 1975 standards.*—The initial question raised by these applications is whether effective control technology is available to achieve compliance with the Federal 1975 standards with respect to 1975 model year vehicles. As previously indicated, a positive determination of this question must rest upon three separate subsidiary findings, namely:

(a) Enough models of vehicles to meet the 1975 basic demand for cars must be certified prior to commencement of production;

(b) It must be feasible to mass produce these cars in sufficient quantity to meet that demand; and

(c) The emissions control systems on these cars must function acceptably in actual use by customers.

(a) *Certification.*—The first question is whether technology has been developed to the point that manufacturers can meet requirements for certification of their 1975 models if tested by the 1975 standards. The certification procedures are based upon tests of prototype and preproduction vehicles. Therefore, examination of the probabilities for certification does not include consideration of any of the problems of mass production. What it does focus upon is the capability of a manufacturer to build a limited number of cars for each model line that it intends to sell which can meet the applicable standards. Since all of the test data are derived from cars which are in essence individually equipped prototypes, the test data bears directly upon this question. Because of the preliminary state of development a year ago, the question of certification was virtually the sole issue seriously discussed at the public hearings last spring.

The methodology used for analysis of test data submitted in these proceedings is discussed in greater detail below. My examination of the fundamental technical issue whether technology is adequate to make it feasible for auto manufacturers to meet the 1975 standards has included extensive analysis of test data utilizing this methodology. It has also included a review of the raw data to evaluate the significance that may properly be attached to test results without making adjustments as required by a system of methodology. It has also included a general review of the overall status of development as reflected in the evaluation of the NAS Report and testimony and other statements of persons having expertise in this field.

On the basis of my examination I find it extremely difficult to predict that enough models of vehicles to meet the 1975 basic demand for cars could be

certified under the 1975 standards. I find that the 1975 standards can be met by technology utilizing a rotary engine, a stratified charge engine or a light-duty diesel engine. It is clear, however, that a shift over to such technology cannot be accomplished within time to meet more than a fraction of the 1975 basic demand. With respect to conventional internal combustion engines, I find that technology has developed to the point that many models (66 percent of sales) almost certainly would meet certification requirements under the 1975 standards. It is less certain that other models would be able to meet those requirements.

As indicated previously, the Court of Appeals in its decision has directed me to weigh the evidence and make my decision "by taking into account that the risk of an 'erroneous' denial of suspension outweigh[s] the risk of an 'erroneous' grant of suspension," Dec. p. 58. It cautioned me against holding the "safety valve" of suspension "too rigidly," Dec. p. 44, and advised me that these risk-balancing considerations, though they may seem to speak only to the "public interest test," must also be taken into account in determining whether technology is available, Dec. p. 47.

Weighing all of these considerations, I believe that presently available technology is probably effective to achieve compliance with the 1975 standards insofar as the certification requirements are concerned. However, I also believe that there is a significant risk that this determination would prove to be erroneous and that manufacturers would not be able to successfully certify vehicles at the statutory levels in sufficient numbers to meet basic demand for 1975 cars, either in California or throughout the Nation. My decision requiring California cars to meet slightly less stringent standards minimizes these risks without any significant adverse effect on air quality in California and assures that a full line of 1975 cars with catalysts will be certified for California. I believe this decision is in the public interest and is fully consistent with the Court's opinion.

(b) *Production.*—The second basic issue pertinent to my decision in this case is whether it is feasible to produce cars utilizing the best available technology, which in the case of conventional internal combustion engines includes use of catalysts, on a mass production basis in sufficient quantity to meet the 1975 basic demand.

At least 10 million automobiles are expected to be produced and sold in this country during the 1975 model year. If Federal emissions standards in that year require the use of catalysts on all conventional engines, somewhat more than 10 million catalysts will have to be produced and the automobile assembly lines will have to be adapted to provide for catalyst installation.

At present neither the auto industry nor the catalyst industry has any significant experience with the mass production or handling of the type of catalysts that will be required. Furthermore,



the evidence before me indicates that the auto industry has drastically abbreviated many of its normal procedures in order to stand ready to put catalysts on all 1975 vehicles. Construction and tool-up commitments have been made while the final design of the component that will be produced in these facilities is still under development. The normal procedure of phasing in new technology across a portion of the model line, which allows major unforeseen problems to be discovered and dealt with, has been dropped. Even the normal shakedown time used to correct minor defects in new assembly lines has been greatly abbreviated.

The elimination of these procedures has allowed the industry to preserve capacity to put catalysts on all its 1975 cars. By that I mean that the applicants have made all the necessary long term commitments for plant construction, tool-up, release of designs, and the like, which have had to be made up to now, and have thus been able to adhere to a schedule which, if all went well, would allow sufficient numbers of catalysts to be produced and installed.

There remains, however, the possibility that all may not go well. The company which has laid the most stress on this point is General Motors.

In its opening statement, GM testified that it had drastically compressed "the normal procedures for procuring and testing machinery," and had pushed its manufacturing plans "in parallel with the development program." They added, "Since neither component development nor process development will have had the benefit of the usual testing procedure, our experience tells us serious unforeseen production problems are very probable." (Tr. 24; see also Tr. 29.)

GM reiterated these points in subsequent testimony (Tr. 129-30, 222-23), which included a detailed description of the complexities of starting a new production line (Tr. 159-62, 166-68). Although GM's main emphasis was quite frankly on unknown problems that their business judgment told them were to be anticipated, the witnesses presented both specific examples of areas where problems might arise (Tr. 162, 171-72, 222-23, 2450-51), and a paper outlining instances where this had happened in the past (Tr. 2395-98, 2429-30, 2453-54).

Ford also made these points (F. App. pp. 4-50, 4-53, 4-62, Tr. 284, 2195-96). However, they laid relatively more stress on problems in producing the catalysts themselves. F. App. pp. 4-28-32; Tr. 263-65). Ford claims that "failure mode analysis" which it has carried out on the catalyst production process shows there are two to three times as many ways for that process to fail as is the case for other new components (Tr. p. 265; see F. App. pp. 4-29-30).

American Motors also raised the possibility of production difficulties (Tr. 2367-68).

\* This may be because the task of quality control is more difficult for a monolithic catalyst (which Ford proposes to use) than for the pebble catalyst GM has chosen (Tr. 1396-97).

If the only statements forecasting such problems came from auto manufacturers, I might well discount that testimony, for the applicants for extensions have an obvious interest in painting a dark picture of what will happen if catalysts are required nationwide 15 months from now.

One manufacturer of catalyst components, however, echoed these fears in the strongest terms. (Tr. 1544-48, 1552-53, 1558, 1565-66) (Walker Manufacturing Co.). Another testified less emphatically, but to the same effect. (Tr. 1421-22, 1429-30) (W. R. Grace & Co.). The remaining four manufacturers were more optimistic about their own capacities, but none disputed the auto companies' statement that there might well be problems with the process as a whole. (Tr. 1449, 1462 (American Lava Corporation); 1507-1510 (Corning Glass Works); 918-19 (Engelhard Industries); 1312 (Matthey-Bishop, Inc.); 1381-82, 1390-92, 1396 (Universal Oil Products Company)). Since it was against the financial interest of the catalyst companies to give testimony that might lead to delaying the nationwide use of catalysts by a year, this evidence has had weight with me.

I have also noted that the desirability of a gradual phase-in of new production facilities was endorsed by the State of California (Tr. 2729), and the machine tool industry (Tr. 1964, 1973, 1976-79, 2011-12).

I find that it is feasible to mass produce catalyst-equipped cars in 1975 but that the use of catalysts on all cars sold in this country in 1975 would entail a significant risk of economic dislocation arising from the inability to acquire a supply of acceptable catalysts, problems on the assembly line, or both. These risks could materialize abruptly, and force the unplanned cessation of production, with attendant layoffs of employees and possibly serious disruption of the national economy. While these risks cannot be quantified, I believe, as did the court of appeals, that they must be considered to outweigh the slight gain in air quality that might result from requiring catalysts on all 1975 cars. This conclusion is fully consistent with the overall objectives of the Act, and it is the decisive consideration underlying my decision to phase-in catalysts technology, rather than to require its use on all automobiles in 1975.

(c) *Warranty and recall.*—For reasons already stated, I believe that catalytic converters will reduce automobile emissions in actual use and may well constitute a more efficient means of controlling pollution from conventional automobiles than engine modification even when the catalyst operates at a fraction of its potential. I do not believe that catalyst failure in use will occur to such an extent as to subject manufacturers to extraordinary warranty or recall liabilities.

Manufacturers can protect themselves from liabilities in various ways. As my earlier decision points out,

There is no question but that some systems will fail. This does not necessarily mean

that repairs will be required at the manufacturer's expense, for the performance warranty and recall provisions are conditioned on proper use and maintenance by the owner. In the case of recall, a "substantial number" of a class or category of vehicles must be found to exceed applicable standards. Where a manufacturer is required to pay for necessary repairs, the data indicates that relatively simple adjustments to air and fuel inputs to the engine or exhaust treatment components may be effective in many cases to remedy nonconformity with the standards. (May Dec. p. 12)

Manufacturers of catalyst-equipped vehicles should, of course, instruct purchasers not to use leaded fuel. Reduced catalyst efficiency caused by lead "poisoning" will therefore result from violation of the manufacturer's instructions for maintenance and operation of the vehicle and will not subject manufacturers to liability under the Act's warranty or recall provisions.

My earlier decision also points out that

It is the manufacturer's obligation to design the vehicle so that operations which may impair emission control are difficult to perform where this is possible, and to caution purchasers against using vehicles in ways or for purposes that can be expected to cause failure of the emission control system. Wherever possible, systems should be built into the vehicle which warn the operator of component failure or impending failure. (Id. fn.)

Catalyst failures caused by continued operation of a vehicle after a warning signal is given to the driver or by operations likely to cause catalyst failure would not result in liability if reasonable and necessary instructions by the manufacturer clearly prescribe such operations.

In addition, the evidence indicates that catalysts retain a substantial conversion efficiency even after severe thermal or mechanical stress. For example, data submitted indicates that in some cases catalysts which had melted as a result of severe thermal stress continued to oxidize more than 70 percent of the hydrocarbon and more than 90 percent of the carbon monoxide emissions from the engine. In other cases, visibly broken or extruded catalysts evidence a similar effectiveness. In such cases, emissions from the vehicle may exceed the certification standard but would not necessarily cause the vehicle to fail an appropriate inuse test.\*

Finally, my decision requiring limited introduction of catalysts during the 1975

\* It is inevitable that some production vehicles will exceed the certification standard during their useful life even where the vehicle is in all material respects of substantially the same construction as the successfully certified prototype. For this reason, I do not believe that the act requires that the certification standard govern warranty and recall. If that were so, manufacturers would be required to repair vehicles which differ from the certification prototype only in manufacturing tolerances essential to a mass production system. These vehicles would on the average reflect the same degree of emission reduction as the successfully certified prototype and would, in most cases, have no repairable defect.



model year should permit manufacturers to exercise a high degree of quality control over catalytic units produced in that year. While deficiencies may occur during initial production, the limited scale of 1975 catalyst production should permit manufacturers to correct these deficiencies without undue hardship. The experience gained will, in my judgment, further minimize in-use failures in subsequent production years.

3. *Methodology and interim standards.—a. 1975 standards.—(1) Background to methodology.*—The most germane and relevant information for determining what lies within the technological reach of each manufacturer would be raw test data on the most effective emission control systems, generated according to the strict procedures of the certification durability test procedures. It is understandable, however, that the development programs of manufacturers vary from this ideal in two respects: They have investigated some components and systems which proved not to be as successful as others; and they have accumulated mileage by procedures other than the Federal certification procedures. Consequently, it is often inappropriate to take the raw data from these development programs as indicative of whether a manufacturer can or cannot achieve a specified level of emissions under applicable certification procedures.

To avoid the dilemma of relying either on no data or on somewhat irrelevant data, it is necessary to develop a methodology that does three things: first, it selects some data, excluding those data which cannot be made germane; second, it makes adjustments to the selected data where appropriate to make their emission levels germane; third, using the selected and adjusted data, it determines which are the best systems.

The court of appeals recognized the validity of using a methodology to make predictions, but insisted that a showing be made of the reliability of the methodology. This my staff has attempted to do, striving to avoid the features criticized by the court in last year's decision and in no case relying on assumptions which were not supported by data or reasoned analysis.

Numerous and diverse methodologies were offered by the manufacturers for predicting their ability to meet the 1975 Federal standards. In many instances, these methodologies had salutary features. In others, they had flaws such as relying upon raw data which was not generated by, or converted to, the Federal certification procedures, or relying upon technological halfway houses rather than upon the best systems which had been developed.

An extensive proposed methodology was issued by the Agency to the manufacturers on March 9. Members of my staff and their staffs met for informal discussions on March 17. The manufacturers submitted critiques the following week, with more supplemental material thereafter. Many of the disputed features

of the proposed methodology and of last year's methodology have consequently been eliminated or changed. It is unavoidable, of course, that disagreements will remain on some points.

(2) *Description of methodology.*—The methodology employed herein assesses the state of technology for each engine family being produced by each manufacturer. This significantly expands the data base for each manufacturer from considering a single overall best system to considering many. The methodology uses each of these systems in its analysis.

Within each engine family, every effort has been made to distinguish between different systems without mistakenly drawing lines between different vehicles within the same system whose different emissions were due only to test-to-test, car-to-car, or deterioration factor variability. In other words, a "best car" analysis has been avoided and a "best systems" analysis has been pursued.

Where engine families were not the subject of adequate testing on which to perform this rigorous analysis, the emission levels have been assumed to be equal to those of similar engine families. Where no similar engines were tested, the engine family has not been considered to represent either success or failure in meeting the 1975 standards; the results from other engine families have been taken to represent the ability of the manufacturer. These procedures are more reliable than either the "average system" recommendation of Ford or the method contained in the proposed EPA methodology.

Since catalyst failure has been stressed by each applicant, a "failure analysis" has been conducted to determine the relevance of the reported failures to the overall technology of the applicant. In the majority of instances, the "failures" were more apparent than real.

The most controversial aspects of the methodology are likely to be the "adjustment factors." It is in the nature of development programs that not all vehicles will represent the best systems available to a manufacturer. But it would be absurd to give the less-than-the-best systems the same weight in an assessment of the state-of-the-art that is rightfully due to the best systems. On the other hand, to consider only the few instances in which the manufacturer has reached the pinnacle of technology would be to constrict the data base to a practically unusable degree. Consequently, the methodology applies a few carefully selected, conservative "adjustment factors" to estimate what the less-than-the-best systems would have done had they contained state-of-the-art components, been run on the proper fuel, and so forth. The Court of Appeals opinion clearly endorsed the use of such adjustments if they could be supported by relevant data. EPA has excluded several factors which might be justified and included only those in which the level of confidence is extremely high.

Finally, a statistical correction has been applied to take account of the prob-

lems of test-to-test, car-to-car, and deterioration factor variability. The court of appeals required me to have a high degree of confidence in any conclusions which might lead to a denial of suspension. This high degree of confidence has been assured by the use of a "Monte Carlo" statistical technique (similar to that used by General Motors) which generated the emission level distributions expected to occur when the durability tests are repeated during the "official" certification effort. A quarter of a million calculations were performed, and the predictions contained herein are only those which can be said to represent a 95 percent confidence level in their accuracy. In short, the odds are 20 to 1 that any vehicle will do better than I have predicted rather than worse.

(3) *Results.*—The result of this conservative analysis has been a conclusion that although General Motors could meet the 1975 standards with at least 93 percent of its sales, Ford could be assured of meeting them only with 55 percent, American Motors and International Harvester only with 26 percent, and Chrysler with none. The overall percentage for the industry would be at least 66 percent. I do not consider that sufficient to satisfy basic demand. It is likely that even better results could be achieved, but these are confident minimums.

b. *Interim standards.*—Since the Clean Air Act requires that interim standards be set if a suspension is granted, I have established the standards described earlier. The law requires that such standards reflect the greatest degree of emission control which is achievable by application of technology which the Administrator determines is available, giving appropriate consideration to the cost of applying such technology within the period of time available to manufacturers. Section 202(b)(5)(C).

Catalyst technology is generally available. But possible production problems could constitute too high a cost in terms of lost production and unemployment if catalysts were required on 100-percent production. These problems will be mitigated to the extent that manufacturers are able to meet the national interim standards without catalysts. Consequently, I have decided upon interim standards for California (including approval of waivers for California) which reflect the levels achievable with catalysts and national interim standards which will not require catalysts on most models. I have given appropriate consideration to the cost of applying such technology within the period of time available to the manufacturers.

(1) *California.*—The levels achievable by a portion of the national production capacity are 0.9 grams per mile HC, 9.0 grams per mile CO, and 2.0 grams per mile NOx (1975 FTP). At these levels, I expect the manufacturers to market a full range of vehicles in California, although there may well be a few models of some manufacturers which do not meet these standards. Any unmarketed models would be expected to be replaced



by other models of the same manufacturer, or by vehicles sold by other manufacturers. In this way, competitive pressure is likely to be a strong force for clean air.

(2) *National*.—The national interim standards are based on a judgment that substantial progress has been made in emission control since the manufacturer's 1973 certification program. To a large extent, the technology is available to allow manufacturers to meet the 1975 standards of 0.41 HC, 3.4 CO, and 3.1 NOx. This technology is based on use of catalytic converters, quick heat intake manifolds, air injection, fast release chokes, and improved ignition systems. The national interim standards of 1.5 HC, 15.0 CO, and 3.1 NOx could be met by all applicants using this catalyst technology. In addition, most manufacturers are expected to be able to meet these standards without catalysts, using recalibrations and other components of their best systems.

In addition, items such as superquick heat intake manifolds, variable ratio air pump drives, large capacity exhaust manifolds, and proportional exhaust gas recirculation systems which were not generally planned for use with catalyst systems could lower emissions further without use of a catalyst. Currently available engine-modifications and components have resulted in impressive emission reductions, as discussed in the technical appendix to this decision.

While the amount of available data does not lend itself to a quantitative methodology in predicting levels achievable by using the most promising systems without catalysts, the interim standards represent my best judgment of the achievable levels.

4. *California phase-in of catalyst technology*.—I have discussed above my conclusion that catalytic converters have been demonstrated to be effective and safe. Catalysts promise a dramatic gain in automobile emission control and will be required to achieve compliance with the 1975 statutory standards in cars having a conventional internal combustion engine. Although I have determined that installation of catalysts on all 1975 cars carries with it the possibility of serious production problems and that consequently it is in the public interest to provide an additional 1-year period before commencing nationwide use of catalysts on all models, I have also found that it is feasible and in the public interest for catalysts to be used on a substantial portion of 1975 vehicles. A phase-in of catalysts during the 1975 model year will lay the necessary foundation for full-scale use of catalysts in 1976.

I have considered a number of options to implement a phase-in approach to catalysts during 1975. Of these, the two basic choices involve: (1) Setting a single nationwide set of interim standards at a level which would permit certification of most vehicles without use of catalysts but would require use of catalysts on a larger number of models than the national interim standards prescribed in this decision will require, or (2) select-

ing a geographical area in which to require catalysts on all cars, while establishing a national standard for cars to be sold in other areas which can be met without catalysts on most models. For a number of reasons I have chosen to adopt the latter approach by requiring catalysts on all 1975 models sold in the State of California.

A number of disadvantages could result from any decision to rely wholly on a single set of national interim standards to force partial introduction of catalysts. The major deficiency is that the requirement to install catalysts probably would fall quite unevenly on the different auto manufacturers. Whatever the level of control that was required, a high risk would exist that the standards would force one or more auto manufacturers to use catalysts on a large part or even all of its vehicles while permitting other auto manufacturers who may enjoy at this time a slight lead in emission control technology to use few catalysts or perhaps none at all. Because such a result would cause most of the experience with catalysts to be developed by those manufacturers least advanced in emissions control technology, the full benefits of phasing-in catalysts might well be lost. In such a case, the financial burdens of the phase-in would also fall unevenly upon the different auto manufacturers and the risks of possible severe dislocations would not be avoided.

By imposing catalyst-forcing requirements on essentially all vehicles to be sold in the State of California, the benefits of an across-the-board partial phase-in of catalysts will be assured. All manufacturers will be required to use catalysts on a significant fraction of cars in each model line, but none will be subjected to the possibly overpowering burdens of placing catalysts on all of its cars.

A number of factors support the advisability of conducting the needed phase-in in California. As I have already noted, there is a well-established pattern that emission control advances have been phased in through use in California before their use nationwide. This pattern grew out of early recognition that auto-caused air pollution problems are unusually serious in California. In response to the need to control auto pollution, California led the Nation in development of regulations to require control of emissions. This unique leadership was recognized by Congress in enacting Federal air pollution legislation both in 1967 and in 1970 by providing a special provision to permit California to continue to impose more stringent emission control requirements than applicable in the rest of the Nation. California has regularly applied for and received waivers under this provision from the Federal preemption of State regulatory authority to control emissions from new vehicles, and California has an existing regulatory structure for implementing and enforcing requirements applicable only to cars sold in California.

The experience of Federal and State officials as well as the industry itself in meeting such standards for California

will facilitate an orderly implementation of the more stringent, catalyst-forcing standards for California in this case. That experience will be buttressed by the capability of California State officials to apply the established State enforcement authorities to implement these requirements. While my decision does not grant fully California's pending request for a waiver for 1975 cars, it grants California's request in substantial part. I have no reason to believe that California will not participate fully in the implementation of this decision. Informal and preliminary discussions with representatives of California, and testimony by California in these proceedings, indicates that California's response will be positive.

I believe that my decision represents a fair and legally proper application of the statutory directive that I set interim standards reflecting "the greatest degree of emission control which is achievable by application of technology which \* \* \* is available." Under the facts which I have found to exist, maximum utilization of available technology can be achieved only through some approach requiring a phase-in of catalysts. I am sensitive to the emphasis placed by the court of appeals on applying the statutory requirements in the manner that best serves the public interest. In my judgment, this approach is clearly the best available alternative to serve the public interest.

In setting interim standards for the rest of the country, I have not felt constrained to avoid any reliance upon catalysts to enable auto manufacturers to meet the certification requirements. I anticipate that for certain model lines catalysts may be required. The likelihood that a significant number of cars will be distributed across the country equipped with catalysts will supplement the experience derived in California in a beneficial way.

If the new technology is largely restricted to California vehicles in 1975, it is the testimony of both General Motors and Ford that all the processes needed to mass produce catalyst cars can be tested out on a limited scale that makes tighter quality control possible and allows extra energy to be applied to the cure of any problems that may arise (Tr. 30, 130-31, 141-42, 158, 163-64, 167-68, 2403 (GM); F. App. I-14-15, Ford Mem. pp. 63-64, Tr. 271, 276-77, 285-86, 288-89, 2032-33).

Both companies also stated that they would be able to focus their energies to deal more effectively with such in use failures as did occur if the first introduction of catalysts were in a limited geographical area (Tr. 135 (GM) Ford Mem. p. 64, Tr. 2034, 2194-95, 2972 (Ford)).

Finally, both companies urged the desirability of getting field experience with a large number of catalysts before shifting to full national production, though Ford stressed this more than GM (GM App. pp. I-8-9, Tr. 87, 2400 (GM); F. App. p. I-17, Tr. 271, 286, 2131-32, 2195 (Ford)). In my view the likely gains on this score are significant, though less important than the gains in production experience. Both GM and Ford are presently starting field tests of large fleets of



catalyst-equipped cars from which they hope to learn the major problems such vehicles will encounter in use (Tr. 130-31, 142-46 (GM); Tr. 282-83 (Ford)). There should be time for at least one more such test fleet before 1976 certification begins.

Still, some tangible benefits for 1976 vehicles can be expected to flow from field experience with catalysts on some 1975 cars, even though there will not be much more than a few months between the time such vehicles go on sale in the late summer of 1974 and the start of 1976 certification testing in the fall of that year. Experience can be gathered on how to service these cars and correct any problems they may have in use. In addition, some corrections thought desirable in the light of phase-in experience may be incorporated on 1976 vehicles as "running changes," even after certification testing has begun (Tr. 158).

Of the other two auto companies, American Motors has somewhat reluctantly recognized the desirability of introducing catalysts on a limited basis in 1975 (Tr. 3005-06). Only Chrysler remains unalterably opposed (Tr. 381, 399-400, 3051), though it has accepted the desirability of such an approach in principle (Tr. 451).

Concern was expressed that limited introduction of catalysts a year before their nationwide use would lead to a significant price increase in certain components. This fear was expressed by Engelhard (Tr. 1016-18, Matthey Bishop, Tr. 1313-15, UOP, Tr. 1398-1401, W. R. Grace, 1430-31, and Corning, Tr. 1498-1500). These witnesses foresaw a price increase for the substrate and its coating due to inability to realize full economies of scale. No price increase is foreseen for the can (Tr. 1547).

For a number of reasons, I conclude that this fear is not of overriding importance. Each of the witnesses indicated that it might well be possible to reduce or even eliminate such price increases if capital costs were reduced by the use of smaller or existing facilities (Tr. 917-18 (Engelhard); 1314-15 (Matthey Bishop); 1402-03 (UOP); 1431 (W. R. Grace); 1484-85 (American Lava); 1500-01 (Corning)).

The two major auto companies each indicated that even if any likely cost increase were passed through to the consumer, the resulting rise in sticker price would not exceed \$45 (Tr. 2819-90, Ford Mem. p. 66 (Ford); Tr. 2419-20 (GM)).

Finally, competitive pressures will be at work to hold California prices down. If even one major company finds that the prices of its catalysts do not rise very much, all others in the market will be pressed to match the prices the first company can offer. Even in the very unlikely event that no American company finds itself in such a position, competition from Honda and Mazda (each of which makes a disproportionate percentage of its U.S. sales in California) can be expected to hold prices down.

5. The 1973 Report of the National Academy of Sciences.—Under section 202 (b) (5) of the Clean Air Act, I may only

grant a suspension if a study of auto pollution controls which the Clean Air Act requires to be made by the National Academy of Sciences "has not indicated that technology, processes, or other alternatives are available to meet such standards." The court of appeals placed particular emphasis on this test, stating that:

Congress called on NAS, with presumed reliance on the knowledge and objectivity of that prestigious body, to make an independent judgment. The statute makes the NAS conclusion a necessary but not sufficient condition of suspension (December p. 59.)

The court also said:

While in consideration of the other conditions of suspension, EPA was not necessarily bound by NAS's approach, particularly as to matters interlaced with policy and legal aspects, we do not think that it was contemplated that EPA could alter the conclusion of NAS by revising the NAS assumptions, or by injecting new ones, unless it states its reasons \* \* \* possibly by challenging the NAS approach in terms of later-acquired research and experience. (December pp. 59-60.)

In its most recent report, and in its testimony at the hearings, the NAS addressed each of the three components of a conclusion that technology is "available" and "effective" to achieve compliance, namely: (i) Ability to certify, (ii) ability to produce the vehicles certified, and (iii) ability of these vehicles to comply in use.

The Academy concluded that conventional engines equipped with catalysts "will meet the prescribed emissions standards during certification testing." (NAS Rept. p. 2.) Under questioning at the hearing, it was explained that this statement meant that "a substantial number of vehicles will qualify." It did not exclude the possibility that a smaller, but still significant number of vehicles would not qualify (Tr. 1602, 1604, 1625). This is wholly consistent with my finding. (P. 15, above.) Nor does the Academy expect that a manufacturer would be able to predict which of his vehicles would certify and which would not in advance of the completion of certification testing (Tr. 1604-05).

The Academy further concluded that vehicles incorporating certified systems "can be mass-produced in great enough volume to satisfy, in aggregate, the expected demand for vehicles in model year 1975" (NAS Rept. p. 2). The NAS adhered to this position at the hearing (Tr. 1581-82; 1599; 1624-28), although it refused to speculate on the extent to which production problems might result. I do not disagree that it is physically possible to equip 1975 cars with catalysts. The question remains whether to force catalysts on all cars in 1975 is in the public interest. My finding on the feasibility of mass production (p. 10322, above) was based on evidence indicating a significant risk that production problems could materialize and could have substantial effects on the national economy.

Finally, the NAS stated that there were good reasons to doubt whether vehicles in actual use would meet the standards

under which they were certified (NAS Rept. 69-72, 85-86, 115-116, 124-125). NAS stated at the hearing that these fears were based mostly on a lack of sufficient field data concerning more stressful conditions that might be encountered by catalyst-equipped cars in actual use (Tr. 1615-17).

The NAS findings read in the light of the court's opinion do not appear to constitute a legally sufficient conclusion that technology is available to meet the statutory standards. The NAS itself admitted that there is a chance that a significant number of engine families would not certify and did not deny that production problems were a significant possibility. The NAS did not have the benefit of the court's opinion, and in addressing the issue of technical feasibility of compliance with the standards the NAS apparently did not believe that these risk-balancing considerations were relevant. However, in addressing these and other considerations elsewhere in its report, a majority of the NAS Committee expressed the view that suspension of the standards for 1 year would be "prudent" (NAS Rept., p. 126); and the report presents data which indicates that the effect of a 1-year delay on national air quality would be relatively slight. (Id. pp. 119-124.)

For these reasons, I believe that the several NAS reports, including the most recent report, are consistent with my conclusion that a phase-in of catalysts in 1975 is in the public interest.

6. The public interest.—The compelling reasons which cause me to find that the public interest requires a suspension of the 1975 standards have already been discussed. The other reasons urged on me for finding that suspension would be in the public interest are in my judgment insubstantial. The reasons most commonly cited are that increased fuel economy and better performance and driveability would result from a suspension, and that the grant of an extra year would give the industry "breathing room" to switch over to a means of emissions control superior to catalysts. I will discuss these claims and certain considerations urged upon me for denying suspension in this section of the decision.

a. Fuel economy.—Testimony on the impact that achieving the 1975 standards through use of a catalyst would have on fuel economy varied over a narrow range. GM stated there would be no loss in fuel economy over present levels, and might even be a slight gain (Tr. 176-78).

Ford's submission also contained data to show that its most representative durability fleet of 1975 type vehicles had approximately the same fuel economy as 1973 certification vehicles (F. app. p. 4-46). Another group of vehicles which aimed at greater NOX control than will be required in 1975 had demonstrated a 6 percent fuel penalty. After questioning by the hearing panel regarding this apparent inconsistency, Tr. 309-14, Ford submitted new data comparing the 1975 durability fleet with 1973 production vehicles that showed a 3.9-percent fuel economy loss (Tr. 2048-60). Since Ford



has traditionally calibrated both its test and its certification cars with significantly different air/fuel ratios from its production models, limited weight can be given here to such a comparison.

Chrysler introduced no miles-per-gallon data at all, but under questioning by the panel stated that its estimate of the penalty was 3 percent, which was described as "negligible" (Tr. 423-25). An internal Chrysler status report dated last fall indicated there would be no mileage penalty associated with the 1975 catalyst system, EPA minutes September 8, 1972, but Mr. Heinen testified that studies received thereafter had led to a correction of that figure (Tr. 3228-29).

American Motors testified that there would be "essentially no fuel penalties" associated with the use of a catalyst (Tr. 905). This was also the testimony of Engelhard (Tr. 1018), UOP (Tr. 1326-27), American Lava (Tr. 1469), Nissan (Tr. 1890), Mobil Oil (Tr. 1695), and New York City (Tr. 2232). Volkswagen estimated the penalty at "zero to 5 percent" (Tr. 1859).

On this record, I conclude that there is no significant evidence that more than a 3 or 4 percent mileage penalty will be associated with the use of catalysts in 1975, and that the great weight of the evidence suggests that there will be little or no penalty at all in comparison to emission control systems on 1973 vehicles.

The best data available indicates that a 2-percent increase in petroleum consumption will be required to refine gasoline to required octane levels without use of lead additives to prevent catalyst "poisoning" by leaded gasoline (Tr. 1655). Chrysler estimates that a 4-cent per-gallon price increase will result from this refining penalty (Tr. 430-31). However, the Bonner and Moore study<sup>5</sup> (which seems supported by more persuasive documentation) indicates that less than a quarter of a cent increase in production cost will result.

**b. Performance and driveability.**—The only one of the applicants to suggest that 1975 cars with catalysts may show a decrease in either performance or driveability, as compared to current cars, was Ford Motor Co. (F. app. 1-15, 2-87).

However, in a letter to Dr. N. D. Shutler of EPA, dated March 28, 1973, Ford supplied driveability data for a "representative sample" of its 1973 production vehicles. Comparison of these figures with the driveability ratings supplied for Ford's Riverside West fleet (F. app. pp. II-180-89), reveals no significant differences.

In a March 28 letter to Dr. Shutler, General Motors indicates that the driveability of 1975 vehicles is expected to be at least equal to that of the 1973 models.

**c. Development of alternative technologies.**—Both the court of appeals and the NAS have suggested that a suspension might be in the public interest be-

cause it would give manufacturers time to adopt alternative emissions control technologies superior to the catalytic converter. In response to this concern, EPA has carefully investigated the development status of such technologies, chiefly the rotary, the diesel, and the Honda CVCC engine.

It does not yet seem clear that either the rotary or the diesel can be confidently regarded as markedly superior to the present engine. Though Toyo Kogyo has achieved the 1975 standards with a rotary engine (Tr. 1786), their engines suffer a fuel penalty of between 15 to 17 percent compared to conventional engines (Tr. 1792). GM, which claims to be on the way to solving the fuel economy problems of the rotary (Tr. 219-20), has not yet been able to achieve the standards (Tr. 27).

The diesel, though superior in fuel economy and in emissions control, has found only limited customer acceptance, though this may change if the price of gasoline continues to rise (Tr. 208-10, 1902-03, 1919-23). The major problem with widespread use of diesel engines in passenger cars concerns particulate emissions and odor. While these are not a problem now, with only a few diesel-powered cars on the road, an increase in the number of diesels could create a serious problem.

The Honda CVCC engine is a different case. All Honda vehicles tested by EPA have met the 1975 standards with ease. Honda has reported that a Vega modified to the use of their system also met the 1975 standards, and its fuel economy improved. At the hearings, Honda presented the first data points from a standardized Chevrolet that had been adapted to meet the standards, and has since issued a press release, unverified by EPA, stating that another such car has been successfully modified. Since the Honda system rests on changes in the actual structure of the combustion chamber, there seems no reason to expect that its performance will deteriorate with use any more than present systems.

It is true, nevertheless, that not much is known about the Honda engine. GM, the American manufacturer whose negotiations with Honda appear to be furthest advanced, has not yet been told exactly how the system works (Tr. 2994). As yet there is no clear assurance that the same approach will work for larger vehicles, though the preliminary reports are encouraging. Nor is there a sufficient data base to predict with confidence what the fuel economy performance of the CVCC really is. Finally, although the CVCC system is said to be inexpensive, NAS report page 101, definitive information on that point is not yet available.

Although these potential difficulties should be noted, I do not dispute the NAS judgment that the CVCC system appears to constitute superior technology, particularly as regards durable emission control. The record is clear, however, that even if the other manufacturers elected today to employ the CVCC system on their vehicles as rapidly as possible, it

would take considerably more than 5 years to modify existing production equipment.<sup>6</sup> Control of emissions to anything like the statutory 1975 levels will therefore almost certainly depend on the use of a catalytic converter on large numbers of vehicles for a substantial period of time.

In addition, I am convinced that the best way to accelerate development and use of a superior technology is to put strict emissions control requirements into effect as soon as they are technologically feasible. The merit of the Honda appears to lie in its ability to achieve low emissions levels without some of the difficulties that are associated with other approaches. If that is indeed the case, the sooner strict standards are adopted the sooner the Honda engine will be able to show its true strength in the marketplace. When this happens, other companies will be spurred by competitive forces to adopt it.

Honda itself plans to put CVCC engines into production this summer on its 1974 cars for the Japanese market (NAS Rept. p. 97). Honda plans to sell cars with CVCC engines in the United States during the 1975 model year (Tr. 1758).

**d. Consideration supporting denial of suspension.**—Under the heading of "public interest" it is also necessary, of course, to discuss any reasons why a suspension might not be in the public interest. Clearly the overriding consideration here is the urgent need to clean up this country's air, and particularly the air of our major cities.

The possibility that any decision to suspend may have the effect of delaying the necessary improvement in our air must be addressed.

On the record before it last February, the court of appeals found that the environmental effects of a 1-year suspension would be "relatively modest," even if no interim standards more stringent than the 1974 standards were established.

<sup>5</sup> Not even Honda thought it would be possible to produce any American cars with their system by 1975 (Tr. 1774), though GM may be exploring the possibility of doing just that for the Vega with parts imported from Japan (Tr. 2992-94). One GM witness had testified previously that if granted an extension, GM would "consider" use of the CVCC for the Vega in 1976 (Tr. 198). Another seemed to say that not even this much would be done (Tr. 197-98). Ford, Chrysler, and American Motors all claimed it would be impossible to install the Honda engine on any of their cars by 1976 (Tr. 322 (Ford); Tr. 391 (Chrysler); Tr. 2392 (American Motors)). Two machine-tool manufacturers expressed their opinion that it would take 12 years to convert the auto industry to produce a completely new type of engine, such as the Wankel (Tr. 1938-39; 2013). While the CVCC system may not require such extensive changes (Tr. 1764-65), Ford has claimed that widespread introduction of the Honda engine is not possible until 1978. (F. App. 4-77-78), and that the complete changeover will take a decade (Ford Mem. p. 65). Chrysler made the same estimates (C. App. p. IV-B-4). (See also Tr. 197-98 (GM); Tr. 3031-32 (Chrysler)).

<sup>6</sup> "An Economic Analysis of Proposed Regulations for Removal of Lead Additives from Gasoline." Bonner & Moore Assocs., Inc. (March 1972).



and directed me to weigh adverse effects on air quality lightly against the risk of economic harm. This judgment of the court relating to air quality impact was challenged by some witnesses at the public hearing.

The two sets of interim standards I am promulgating today will help to ensure that the environmental impact of suspension is in fact "modest." The high degree of pollution control these standards represent has already been presented. It is the best judgment of my staff that if cars sold in the 1975 model year meet these interim standards, rather than the 1975 requirements, no measurable difference in carbon monoxide concentrations will result in 7 of the 25 air quality control regions that currently will require transportation controls, and no measurable difference in concentrations of hydrocarbon products (oxidants) will result in 21 of the 26 air quality control regions needing transportation controls for hydrocarbon emissions.<sup>5</sup> This analysis assumes, of course, that cars sold in 1976 and thereafter will meet the statutory 1975 standards for hydrocarbons and carbon monoxide.

In addition, there is some possibility that the introduction of catalysts nationwide in a single model year might lead to reduced car sales in that year and thereby offset any gain in new car emission reduction by slowing down the rate at which older, high-polluting vehicles are retired from service. I find it highly unlikely that such a result would stem from customer rejection of the 1975 models, since they are expected to have essentially the same performance, driveability and fuel economy as the 1973 models which are currently selling at a record rate. However, production difficulties that could lead to a reduction in the number of cars reaching the market might have this effect. It appears that losses in production due to nationwide catalyst use could be enough to offset any increase in air quality due to gains in emissions control performance (F. App. pp. 5-103-113, esp. p. 112).

Finally, where additional transportation controls are needed, local jurisdictions outside California may require fleet vehicles to be fitted with catalysts as a condition of licensing for commercial operations. My decision to require catalysts on all California models in 1975 will assure that a representative range of new 1975 vehicles with catalysts will be available for fleet purchases in major cities.

**e. Lead-free gasoline.**—Catalyst-equipped vehicles require gasoline with a very low lead content in order to avoid lead "poisoning" of the catalyst. Since

the interim standards established by this decision will require catalysts on all vehicles sold in California, many of which will undoubtedly travel to other parts of the country, and on a significant number of vehicles sold in the other 49 States, lead-free gasoline must be generally available nationwide by the beginning of the 1975 model year. This will be accomplished by regulations that have already been promulgated (38 Fed. Reg. 1254, Jan. 10, 1973).

The regulations require a maximum trace lead content of 0.05 g/gal with the goal of achieving 0.03 g/gal on the average. Although some skepticism has been expressed as to whether an average lead content of approximately 0.03 g/gal will actually be achieved in the field, the information available to me reveals no substantial doubt on that score (Amoco (letter of May 9, 1972, from B. J. Yarrington to Deputy Assistant Administrator for Air Programs, EPA), Texaco (letter of March 19, 1973, from W. J. Coppoc to Dr. N. D. Shutler, EPA), Exxon (letter of March 26, 1973, from D. F. Dickey to Dr. N. D. Shutler, EPA), and Mobil, Tr. 1745-46).

**7. Good faith.**—The act requires that, before I grant an extension of time to any auto manufacturer, I must find that "all good faith efforts have been made to meet the (1975) standards." Serious questions have arisen in these proceedings as to whether such a finding would be proper in the case of Chrysler Corp. These questions arose as a result of testimony by a representative of Engelhard Industries that Chrysler had refused to purchase catalysts from Engelhard for reasons materially influenced by the aggressive testimony of Engelhard at the EPA hearings last year. Because of these charges, six volumes of additional documents were subpoenaed from Chrysler, and 2 additional days of hearings were held. All this evidence has been carefully examined, along with what was already in the record, and my conclusions based on it are set out below.

The central question focused on in the hearings was why Chrysler awarded a catalyst supply contract to Universal Oil Products Co., and not to Engelhard Industries, in September 1972. A secondary question concerns the award of a 100 percent catalyst requirements contract to UOP in March of this year. To answer these questions, detailed inquiry into events at Chrysler between May 1972 and the present was necessary. Before briefly summarizing the results of that inquiry, however, it is appropriate to make two points by way of background.

First, according to figures supplied by Chrysler and other auto manufacturers (C. Mem. p. 49), Chrysler's spending on emissions control has varied between a sixth and a tenth that of Ford and General Motors in each of the 3 years since the Clean Air Act was passed. These figures indicate that Chrysler has been spending about a third as much for this purpose per dollar of sales volume as

General Motors and Ford. In addition, both Ford and General Motors are presently preparing test fleets of catalyst cars to operate in the field. Chrysler testified that it had no firm plans to do anything similar (Tr. p. 3073-74, 401-02).

Though these comparisons are not favorable to Chrysler, they are by themselves not necessarily decisive. Chrysler's emissions research expenditures, on a market share basis, have been about equal to American Motors', while the percentage of Chrysler research dollars going to emissions control compares with the percentage for the other members of the Big Three. It may be that in the auto industry there is a minimum company size or market share below which the capacity to fund research falls off noticeably. Nevertheless, I am seriously troubled by the level of Chrysler's expenditures on emission control research, particularly when this fact is considered with other questions that have been raised concerning Chrysler's emission control development program.

The low level of Chrysler expenditures does make it disturbing to turn to the record of Chrysler's pollution control activities in the first half of 1972 and find that in that period criticism was expressed within the Chrysler organization that the Chrysler efforts were not adequately concentrated on meeting the 1975 requirements. One member of the Emission Policy and Review Committee, H. R. Steding, protested against a diffusion of energies on two separate occasions. EPR Minutes for March 7, 1972, and May 2-4, 1972. (See also Tr. 3091-93.)

A full review of the history of Chrysler's catalyst development efforts during the period at issue here is not possible within the confines of this decision. In brief outline the salient features are as follows.<sup>6</sup>

During the spring of 1972 it appears clear that Chrysler regarded a noble metal monolithic catalyst as far more promising in performance than pebble type catalysts and that Engelhard was the first choice among catalyst suppliers furnishing monolithic catalysts to Chrysler. Following my decision announced last May, Chrysler officials exhibited a considerable sense of urgency to finalize selection of their first choice system and make commitments for production. Nonetheless, the decision was deferred, and during the summer of 1972 Chrysler devoted considerable efforts to evaluation of pebble catalysts, motivated in part by the expectation that they would be cheaper than monoliths. In the course of these efforts UOP emerged as a promising possible vendor of pebble catalysts.

In September 1972 Chrysler decided to use a monolithic catalyst and entered into an arrangement with UOP to develop and produce such catalysts. At

<sup>5</sup> Five of these 26 regions are in California and will benefit from the stringent 1975 California standards promulgated today.

<sup>6</sup> "Poisoning" is a dramatic name for a simple phenomenon, namely, the loss of catalytic activity when lead in the gasoline settles on the catalytic surface and, by coating it, prevents it from reacting with the exhaust gases.

<sup>7</sup> Supporting details are contained in appendix A, which is a part of my findings in this matter.



that time Chrysler had no vehicle test experience with UOP monolithic catalysts. All its vehicle durability tests of monoliths had been with Engelhard monoliths.

The vexing technical question raised by this Chrysler decision is the extent to which it returned the Chrysler catalyst program to a more preliminary state of development. It would seem apparent that considerable problems and lost development time would necessarily result from choosing a manufacturer with little experience in monolithic catalysts over one which had long been a leader in the field. The record indicates that such problems and lost time have in fact occurred. Indeed considerable evidence was presented that during the 6 months following their initial agreement Chrysler and UOP have been attempting, with a degree of success that remains unclear, to catch up to the technical capability developed by Engelhard.

It is apparent that in both the September 1972 decision to begin cooperative work with UOP and the March 1973 decision to deal exclusively with UOP for acquisition of catalysts, Chrysler was strongly influenced by considerations of cost savings. The lack of clarity on the extent to which performance of catalysts and speed in the development of technology may have been sacrificed as a trade-off against anticipated cost savings presents disturbing questions with respect to the good faith efforts of Chrysler. I find that certain sacrifices in the progress of its technology were made by Chrysler to achieve cost savings.

The initial question which triggered this inquiry likewise remains in doubt. The record does not support a determination as to whether or not Chrysler's decision against purchasing catalysts from Engelhard was materially influenced by antagonisms aroused by the testimony of Engelhard at last year's EPA hearings. I am particularly disturbed by this question because of a possible conflict in the testimony under oath by representatives of Engelhard and Chrysler.

It is possible that the difference between the versions of the September 22 meeting given by Engelhard and Chrysler representatives reflect different recollections of the same statement. If I were forced to choose between one or the other of those versions, the one put forward by Mr. Leventhal of Engelhard would seem more probable. One salient fact inclining me to that view is that the handwritten notes from which the official Chrysler minutes of the meeting were prepared indicate that Mr. Bright of Chrysler made a statement similar to the one which both Engelhard representatives present at the meeting testified he made.

On such a record, the gravest questions as to Chrysler's compliance with the statutory requirements must arise. But a determination that they have not been met cannot be lightly made. UOP is a well-established company with a past and present reputation for excellence, and there is evidence that this

was a major influence in Chrysler's choice. (Tr. 3149-50.) In addition, the Court of Appeals has directed me, in weighing the proof applicable to determinations in this proceedings, to take account of the consequences of a wrong decision either way.

With regard to Chrysler, I conclude with serious reservations that the statutory requirements concerning good faith have been met. In reaching this conclusion, I am placing decisive reliance upon the consideration that the sanction that arises from a negative finding on this issue with respect to a particular manufacturer could force that manufacturer to close down in 1975. Such a result would not only create extreme hardship for large numbers of innocent employees of the manufacturer concerned but would also severely impact numerous suppliers of the manufacturer and ultimately the public at large. Thus, despite the very serious questions I have concerning the record as it relates to Chrysler on this point, I do not believe that Congress intended me to make a finding of bad faith in the absence of a very high degree of certainty that the acts of a particular manufacturer require such a finding. On this record, Chrysler's defense of its procurement decisions and of its acts with respect to Engelhard have raised sufficient doubt to preclude a positive finding of bad faith.

No such substantial questions arise as to the good faith efforts of the other applicants. I found last year that, as far as financial commitments in this field were concerned, "efforts of the automobile industry as a whole would appear to meet the test of good faith." May-Dec. pp. 23-23. In the last year, those expenditures have substantially increased.

I also found last year that a coherent program aimed at timely compliance with the statutory standards was an ingredient of "good faith." The success of General Motors' program in generating the test results that have been discussed is evidence that the program has been so organized.

Ford has also carried on an ambitious testing program and in recent years has increased its spending on emissions control more than any other manufacturer. In addition, Ford was the first manufacturer to enter into formal financial arrangements with a catalyst manufacturer.

Although the smaller two applicants, American Motors and International Harvester, appear to be limited by their size in the degree of independent emissions control research they can carry on, their efforts appear to meet the statutory standards when that fact is considered.

All of the applicants have evidenced a slowness to pursue alternate technologies that I have found both disturbing and frustrating. It seems fairly clear now, that if these companies had begun early in 1971 to develop a capability to produce other kinds of engines, and particularly the stratified charge type engine developed by Honda, large numbers of 1975 automobiles could probably

achieve the statutory standards. I recognize, however, that in making this criticism of the manufacturers development programs I am aided by hindsight. For I cannot be certain that the low emission potential of alternate engine systems such as the stratified charge engine, and the adaptability of alternate engines to a wide range of automobiles, could have been foreseen 2 years ago. Indeed, as I have stated above, we know relatively little about the stratified charge engine at this time.

The manufacturers generally may have demonstrated undue conservatism and a lack of foresight in not pursuing alternate systems more vigorously. However, I cannot conclude that their present state of progress in these areas is a result of bad faith on their part.

**8. Multipurpose vehicles.**—In the same section of its opinion that excluded light weight trucks from the category of "light duty vehicles" subject to the 1975 emissions standards, the court of appeals raised a serious question as to whether "multipurpose vehicles," such as those made by International Harvester, differed at all from such trucks in their ability to control emissions (Dec. pp. 38-42). The court left open the question of whether multipurpose vehicles should continue to be classed as "light duty vehicles" and whether, even if so classed, should be entitled to suspension as a subclass.

The information available to me indicates that the design of multipurpose vehicles is such that the great majority more closely resemble light duty trucks than light duty vehicles. Accordingly, I am today determining that all vehicles under 6,000 pounds g.v.w. which are designed primarily for the transportation of property or are available with special features enabling off-street or off-highway operation and use shall be considered as light duty trucks. The standards to be applied to these vehicles will be determined as a result of the proposed rule-making issued for light duty trucks on March 14, 1973 (38 FR 6906).

**IV. Administrative finality.**—The decision issued today is final for purposes of judicial review, and no formal agency proceedings for its reconsideration are presently contemplated. The court of appeals has emphasized, however, that even such a "final" decision remains open to a petition for reconsideration or modification, and that such petitions, if found meritorious, should be acted on.

WILLIAM D. RUCKELSHAUS,  
Administrator.

APRIL 11, 1973.

#### APPENDIX A

This appendix contains a more detailed narrative of Chrysler's dealings with catalyst suppliers in the period May 1972 to the present than is set forth in the main body of the opinion. It is part of the findings of fact in this proceeding. Much of the data is drawn from minutes of the Emissions Policy and Review Committee (cited "EPR"), the group charged with overseeing Chrysler's emission control program.

It is clear that in late May and early June of 1972, Chrysler regarded the necessity to



choose very quickly between the use of a pellet or a monolith catalyst as pressing. On May 30, Mr. Bright, the man in charge of Chrysler's emission control effort, said in an EPR meeting that the choice would have to be made "within 10 days." EPR minutes May 30, 1972, and Mr. Steding, an EPR member, reemphasized the point 2 weeks later. EPR Minutes June 13, 1972. (See also C. Doc. Vol. V, Sec. 1, p. 3.)

It is also clear that if the choice had been made then, a monolithic catalyst would have been chosen, and it appears that the choice would most likely have been Engelhard. At the EPR meeting of May 30, Engelhard was listed as the first choice of the three monolithic catalysts mentioned, while use of a pebble at all was stated to be "contingent on satisfactory car tests." A technical report prepared for that meeting by Dr. Teague, the head of Chrysler's catalyst research, stated that the tests of Engelhard catalysts had given "good results" (C. Doc. Vol. VI; Tr. 3119). At the EPR meeting on June 13, Mr. Steding said the choice between pebble and monolith had to be made, and that he had "no alternative" to assuming that the monolith would be chosen.

But the choice was put off, apparently to allow intensive testing of pebble catalysts over the summer. Chrysler has claimed that the heat resistance properties of the new pelleted catalysts that became available in the late spring of 1972 motivated this choice (Tr. 2907, 3127, 3121). Though I do not question that this was a factor, the evidence does not indicate that pebbles tested in that period proved to have heat resistance superior to the Engelhard monolith. Compare EPR minutes May 30, 1972, research report and figures 3 and 4, EPR minutes June 13, 1972 ("platinum on monolith was the most heat-resistant catalyst"), and attached research report; research report attached to minutes of August 22, 1972 EPR meeting with EPR minutes June 13, 1972 ("early tests show [two pebble catalysts] to be as good or better than the Engelhard platinum monolith"); chart attached to EPR minutes of August 8, 1972.

I therefore conclude that Chrysler explored the possibility of substituting pebbles for the monolith not primarily to gain in heat resistance, but to realize other advantages of the pellet such as greater ease of servicing, EPR minutes July 25, 1972 (C. Mem. p. 54), and potentially lower costs, EPR minutes September 21, 1972 (research report) (C. Doc. vol. V, sec. 2, pp. 7-8).

When the results of vehicle testing became available in the late summer of 1972, the monolith came out ahead (Tr. 3132-33).

Accordingly, the decision was made to use a monolith in the 1975 first-choice system, and it was on that basis that a letter of intent was entered into with UOP on September 15, 1972 (Tr. 2932, 3136).

At the time this letter was executed, Chrysler had no vehicle test experience with UOP monolithic catalysts (Tr. 2921). The first such tests began in December, and two of the first three catalysts tested suffered "catastrophic failure" (C. Doc. vol. V, sec. 2, p. 30). Chrysler attributes this to engine failure not associated with the catalysts.

At the time of the September decision, all of Chrysler's nine durability test vehicles for monolith catalysts had been run equipped with Engelhard monoliths. Six of these cars had completed their runs and three were still running (Tr. 2916-17). Chrysler testified that the results from these tests were "in the ball park of meeting 1975 standards" (Tr. 2926).

Such a record, in my view, makes it most unlikely that the choice of UOP over Engelhard was based on an assessment of the relative technical capacity of the two companies, and places a heavy burden on

Chrysler if it seeks to show that that was in fact the case. In response, Chrysler has offered four separate explanations, none of which I find fully convincing.

The first is that Chrysler thought UOP would be able to use the process by which they had made a more heat resistant pellet of gamma alumina to make a more heat resistant gamma alumina washcoat for the monolith (Tr. 2882, 2922, 3123, 3149-50).

Although I cannot say that such a hope was unrealistic, the record indicates that Chrysler must have known there would be difficulties in achieving it. In a pellet the catalytic material is applied directly to little pebbles of gamma alumina, while in a monolith the alumina must first be spread on, and firmly attached to, a two-dimensional surface (Tr. 3163-69). In fact, the research report attached to the EPR minutes of October 3, 1972 indicates substantial uncertainty over whether the technology could be transferred. "Very tentatively, it appears that U.O.P. may have more to contribute on the primer [washcoat] application process." The same uncertainty to a lesser extent was indicated by UOP in a letter discussed at Tr. 3066-68. The research report for the EPR meeting of January 10, 1973, indicates that a washcoat to substitute for UOP's was being tested in the Chrysler laboratory.

Chrysler also argues that UOP was more willing than Engelhard to cooperate and share its knowledge with Chrysler (C. Mem. 56, Tr. 2883, 3057, 3059-60). However, a December 27, 1972 letter agreement between Chrysler and UOP indicates that UOP gave Chrysler permission to analyze the UOP monolith, but not the pellet with which UOP has worked considerably more intensively (C. Doc. vol. IV). A letter of May 19, 1972 (C. Doc. vol. III, sec. 2), shows that even without a supply contract Engelhard had agreed to let Chrysler make analysis of its catalysts to determine how "poisoning" occurs.

A third and closely related point is that until the fall of 1972 Chrysler had experienced considerable difficulty in getting samples of Engelhard's new catalyst, the II-B, to test (C. Doc. vol. V, sec. 2, pp. 10-11). There does appear to be validity to this argument (Tr. 3071-72), although the EPR minutes contain no record that any such problem was ever brought to the Committee's attention. However, even the old Engelhard monolith, for which there is no record of supply difficulties, had by far the best record of any catalyst tested.

Finally, Chrysler claims that Engelhard insisted rigidly on becoming the supplier for 65 percent of their catalyst requirements, while UOP was willing to settle for as little as 40 percent, and to include an escape clause binding UOP to match the performance of any other catalyst maker (C. Mem. pp. 55-57, Tr. 2934-35, 3090, 3144, 3155). Nevertheless, the commitment to UOP was necessary, as Chrysler itself admits, because lead time for the 1975 model year was getting very short, and it was necessary at that time to make commitments to catalyst makers that would allow them to start construction of the necessary facilities (C. Mem. pp. 55, 57, Tr. 2883). In such circumstances it would appear that the claimed "flexibility" existed more on paper than in reality. Since every passing month would make it harder for any potential Chrysler commitment to another company to bear fruit in time for 1975, the September commitment as a practical matter probably locked Chrysler into

\*Some idea of the technical complexity involved in making monolithic catalysts can be obtained by examining the patents at the back of C. Doc. vol. III, sec. 1.

relying on UOP for at least a substantial portion of its requirements.

It appears that much was surrendered to gain these four claimed advantages. It would seem clear that considerable problems and lost development time would necessarily result from choosing a manufacturer with little experience in monolithic catalysts<sup>11</sup> over one which had extensive experience in the field. The record indicates that such problems and lost time have in fact occurred.

In its submission dated this March, Chrysler said that 6 months after its commitment to UOP, "the Engelhard catalyst is the most active and durable of all the catalysts tested" (C. App. IV-A-25). Faced with this statement, one Chrysler representative indicated that the data available as of March 1973, did not entirely support the wisdom of the September commitment (Tr. 1115).

The Chrysler documents from September 1972 to the present bear out that judgment. They show that Engelhard catalysts were constantly used as a standard of reference, to be equalled if possible. EPR Minutes January 10, 1973 (research report); EPR Minutes January 23, 1973; EPR Minutes January 23, 1973 (research report). ("In all of these laboratory tests [of other catalysts], as well as car and dynamometer tests, the Engelhard catalyst has served as a standard of excellence.")<sup>12</sup> EPR Minutes February 20, 1973 (research report).

I do not regard the severely limited test data (at C. Mem. pp. 1b-7b) as proving the contrary. Even if test results at 500° only are taken as representative of catalyst activity over the entire temperature range (which they are not), the problem that Chrysler has laid almost all its stress on, both in discussing the washcoat and in its emphasis on catastrophic failure is durability in use. The activity tests do nothing to prove the durability of the UOP catalyst.

Chrysler has also submitted two recent dynamometer comparisons of the endurance of Engelhard and UOP catalysts, which appear to show marginally better performance by UOP (C. Mem. pp. 8b-9b). It is not clear how much importance can be attached to such severely limited data, and Chrysler itself appears to place limited significance on it. At the most, it would indicate some probability that UOP has caught Engelhard in the laboratory, and that nothing can be said about whether this will still be true for vehicle tests. The Chrysler submission states that car tests to date indicate "poor durability for [UOP] catalysts, far below that needed to meet the 1975 standards" (C. App. p. IV-F-18). The two examples cited to support this point seem to be the same catalysts whose melting was attributed to engine failure in the passage (from C. Doc. Vol. V) quoted above.

On balance, I therefore conclude that although some of the technical explanations for UOP's selection have merit, they would themselves have been far from enough to

<sup>11</sup> C. Mem. p. 57 states that UOP indicated at a meeting on July 25, 1972, that they had "extensive experience" in monoliths. An examination of the document cited as support for this assertion does not appear to bear it out.

<sup>12</sup> Chrysler argues that test results from this period showing Engelhard superior to UOP are misleading, since all the UOP catalysts were tested, but only those Engelhard catalysts were tested that passed Engelhard's quality control. There is some force to this point. But the minutes quoted here note that all UOP catalysts were tested, say that some portion of their poor performance can be attributed to that, and on balance still recognize Engelhard as clearly superior.



cause Chrysler to select UOP over Engelhard, particularly in view of the great disparity in test data available from the two companies.

A reason for UOP's selection that seems more persuasive than any of the above is price. Mr. Heinen testified that the September contract was made by submitting a list of four acceptable companies to the Chrysler purchasing department and letting them pick the lowest bidder (Tr. 3148, 3152. See also Tr. 1121, 1123, 1135). The August work sheets (in C. Doc. Vol. I) are entirely consistent with this testimony, for they are set up to compare four companies on the basis of price alone. Mr. Bright testified that price was an important factor (Tr. 1134, 1140), as did others (Tr. 1101, 1105, 1114). I find that a price comparison among companies was in fact a dominant influence in the decision.

The difference in the ultimate price of the car that would have resulted from accepting the Engelhard September quote rather than the one made by UOP appears to be \$5 (Tr. 2946).

It is even clearer that price was a primary motive for the choice made in March of 1973, to place 100 percent of Chrysler's catalyst requirements with UOP. The documents provided us for the period September 1972 to March 1973, place some stress on the fact that UOP catalysts are cheaper than Engelhard, although they may not perform as well. The difference is variously attributed to a lower UOP precious metal loading, EPR Minutes January 23, 1973 (research report), and Engelhard's tighter quality control, EPR Minutes January 10, 1973, and January 23, 1973.

Catalyst quality aside, there are certain advantages to any manufacturer in having more than one source for such a vital part as a catalyst. A variety of sources spreads the risk of shutdowns and other production difficulties. The Chrysler testimony indicates this was realized (Tr. 3216).

The record is plain, however, that the risk of having only one source was taken because that was the cheaper course. EPR Minutes November 28, 1972 ("Mr. Bright commented that from an economic standpoint, Corning-UOP may be the best single source combination. . . . All things considered, we could decide to risk the single source situation.") (emphasis supplied). He testified to the same effect at the hearing (Tr. 1163).

The amount saved per car by this choice (on the basis of two catalysts to a car) was apparently about \$7 a car on the 40 percent of Chrysler production for which the choice of a supplier other than UOP was still considered open at that time (Tr. 3213, Ex. P-52, C. Doc. Vol. I).

[FR Doc.73-8145 Filed 4-25-73; 8:45 am]

#### GREAT LAKES WATER QUALITY BOARD Federal Support Committee

Memorandum for: Hon. Elliot L. Richardson, Secretary of Defense; Hon. Rogers C. B. Morton, Secretary of the Interior; Hon. Earl L. Butz, Secretary of Agriculture; Hon. Frederick B. Dent, Secretary of Commerce; Hon. Claude S. Brinegar, Secretary of Transportation; Hon. Dixy Lee Ray, Chairman, Atomic Energy Commission.

APRIL 20, 1973.

The Boundary Waters Treaty of 1909 established an International Joint Commission of six members, three appointed by the United States and three by Canada, to which all matters of common interest involving the Great Lakes could be referred in the future for research and investigation. On April 15, 1972, the

Governments of the United States and Canada entered into an agreement on Great Lakes water quality and requested the Commission to assist the governments in the implementation of the agreement. To help the Commission in meeting its new responsibilities, the governments directed the Commission to establish a Great Lakes Water Quality Board with nine members from the United States and nine from Canada. In accordance with the terms of the agreement, the Commission must appoint one United States member from each of the eight different States bordering the Great Lakes. The ninth United States member is appointed by the Commission from the Federal Government. The Commission established the Board on July 20, 1972, and named Francis T. Mayo, Regional Administrator, Environmental Protection Agency, Chicago, Ill., as the Federal Government member and cochairman of the Board.

#### ESTABLISHMENT OF FEDERAL SUPPORT COMMITTEE

In order to assist the Federal member of the Water Quality Board, and to assure that Departments and agencies of the executive branch work together to realize the goals of the Great Lakes Water Quality Agreement, I am establishing a Federal Support Committee to the Federal member. I would appreciate it if each of you would designate a representative to serve as a member of the Committee. Mr. Mayo shall be Chairman of the Committee. Meetings of the Com-

mittee shall be at the call of the Chairman, and the Committee shall meet not less than once each year at a place designated by the Chairman. The Committee shall not be terminated while the Great Lakes Water Quality Board is still in being.

#### FUNCTIONS OF THE COMMITTEE

Each member of the Committee shall, after discussion, where appropriate, with other members of the Committee or the Committee as a whole:

a. Advise the Federal member on the Great Lakes Water Quality Board on all matters dealing with the obligations of the United States under the Great Lakes Water Quality Agreement, insofar as they fall within the jurisdiction of the Department or agency that appointed him.

b. Assure adequate participation by the Department or agency that appointed him in meeting commitments of the United States under the agreement.

Each member of the Committee shall have sufficient authority within his Department or agency to enable him to discharge these responsibilities.

Each Department and agency should furnish the Committee with such information and other assistance as may be called for to the extent permitted by law.

This memorandum shall be published in the Federal Register.

WILLIAM D. RUCKELSHAUS,  
Administrator.

[FR Doc.73-8144 Filed 4-25-73; 8:45 am]

#### FEDERAL COMMUNICATIONS COMMISSION

##### BAHAMAS TELECOMMUNICATIONS CORP.

##### Notice of Power Increase

##### BAHAMAS NOTIFICATION LIST NO. 2/73

Call letters	Location	Power (kW)	Frequency	Antenna	Schedule	Class
ZNS-2	Nassau	1D/0.25N	1240 kHz	ND	U	IV

FCC NOTE.—By letter dated April 12, 1973, the Federal Communications Commission received notification from the Bahamas Telecommunications Corp. of a power increase to 1 kW for station ZNS-2. Although the notification did not state that the existing nighttime operation would continue at 0.25 kW power, we make the assumption that it will be continued pending receipt of additional information.

[SEAL] WALLACE E. JOHNSON,  
Chief, Broadcast Bureau,  
Federal Communications Commission.  
[FR Doc.73-8112 Filed 4-25-73; 8:45 am]

#### STEERING COMMITTEE FEDERAL/ STATE—LOCAL ADVISORY COMMITTEE

##### Notice of Meetings

APRIL 20, 1973.

The Steering Committee of the Cable Television Federal/State—Local Advisory Committee will hold open meetings on May 9 and 10, 1973, at 10 a.m. The meetings will be held in room 6331 of the

West Annex of the Commission, 2025 M Street NW., Washington, D.C.

The agenda for these meetings will be the continuation of a discussion of issues to be included in the final Advisory Committee report.

FEDERAL COMMUNICATIONS  
COMMISSION,  
[SEAL] BEN F. WAPLE,  
Secretary.  
[FR Doc.73-8111 Filed 4-25-73; 8:45 am]

#### FEDERAL POWER COMMISSION

[Docket No. CI73-677]

##### APACHE EXPLORATION CORP.

##### Notice of Application

APRIL 19, 1973.

Take notice that on April 4, 1973, Apache Exploration Corp. (Applicant), P.O. Box 2299, Tulsa, Okla. 74101, filed in docket No. CI73-677 an application pursuant to section 7(c) of the Natural Gas Act for a certificate of public convenience and necessity authorizing the